US Army Corps
of Engineers

Northwestern Division
Missouri River Basin
Water Management Division

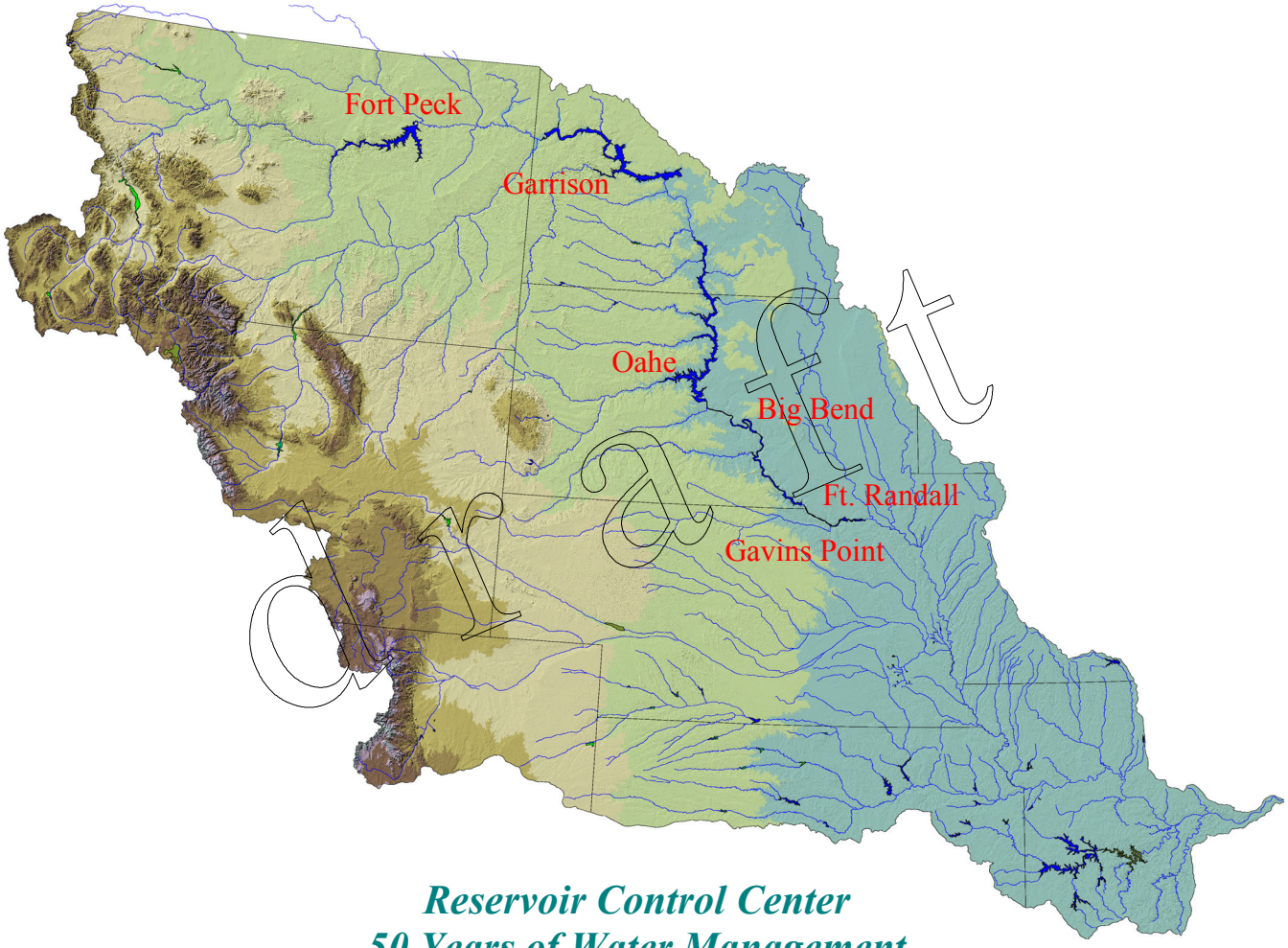
Draft

AOP

2003-2004

Missouri River Mainstem System

2003-2004 Annual Operating Plan



Reservoir Control Center
50 Years of Water Management
Missouri River Mainstem System

Annual Operating Plan Process
51 Years Serving the Misssouri River Basin

October 2003

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2003-2004

TABLES

PLATES

Exhibits

ABBREVIATIONS

AOP	-	annual operating plan
ac.ft.	-	acre-feet
AF	-	acre-feet
B	-	Billion
cfs	-	cubic feet per second
COE	-	Corps of Engineers
CY	-	calendar year (January 1 to December 31)
elev	-	elevation
ft	-	feet
FY	-	fiscal year (October 1 to September 30)
GIS	-	Geographic Information System
GWh	-	gigawatt hour
KAF	-	1,000 acre-feet
Kcfs	-	1,000 cubic feet per second
kW	-	kilowatt
kWh	-	kilowatt hour
M	-	million
MAF	-	million acre-feet
MRBA	-	Missouri River Basin Association
MRNRC	-	Missouri River Natural Resources Committee
msl	-	mean sea level
MW	-	megawatt
MWh	-	megawatt hour
plover	-	piping plover
pp	-	powerplant
RCC	-	Reservoir Control Center
RM	-	river mile
tern	-	interior least tern
tw	-	tailwater
USFWS	-	United States Fish and Wildlife Service
USGS	-	United States Geological Survey
yr	-	year

DEFINITION OF TERMS

Acre-foot (AF, ac-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,850 gallons.

Cubic foot per second (cfs) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute. The volume of water represented by a flow of 1 cubic foot per second for 24 hours is equivalent to 86,400 cubic feet, approximately 1.983 acre-feet, or 646,272 gallons.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface streams and bodies of impounded water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Runoff in inches shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2003 - 2004

I. FOREWORD

This Annual Operating Plan (AOP) presents pertinent information and plans for operating the Missouri River Mainstem Reservoir System (System) through December 2004 under widely varying water supply conditions. It provides a framework for the development of detailed monthly, weekly, and daily regulation schedules for the System's six individual dams during the upcoming year to serve the Congressionally authorized project purposes. Regulation is directed by the Missouri River Basin Water Management Division (formerly the Reservoir Control Center), Northwestern Division, U.S. Army Corps of Engineers (Corps). A map of the Missouri River Basin (Basin) is shown on ***Plate 1*** and the summary of engineering data for the six System projects is shown on ***Plate 2***.

This plan may require adjustments when substantial departures from expected runoff occur, to meet emergencies, or to meet the provisions of other applicable law, including the Endangered Species Act (ESA) and the conclusion of ongoing Corps and U.S. Fish and Wildlife (USFWS) consultation under Section 7 of that Act.

Prior to the 1998-1999 AOP, a System description and discussion of the typical operation, a historic summary of the previous year's operation, and the plan for future operation was included in one document. Since the 1998-1999 AOP this information has been published in separate reports available upon request. This document provides the plan for future operation of the System. To receive a copy of either the updated version of the "System Description and Operation," dated Spring 2002, or the "Summary of Actual Calendar Year 2002 Operations dated May 2003," contact the Missouri River Basin Water Management Division at 12565 West Center Road, Omaha, Nebraska 68144-3869, phone (402) 697-2676. Both reports are currently available at the "Reports and Publications" link on our web site at: **www.nwd-mr.usace.army.mil/rcc**. The "Summary of Actual Calendar Year 2003 Operations" will be available at the same site in the spring of 2004.

II. PURPOSE AND SCOPE

Beginning in 1953, projected System operation for the year ahead was developed annually as a basis for advance coordination with the various interested Federal, state, and local agencies and private citizens. Also beginning in 1953, a coordinating committee was organized to make recommendations on each upcoming year's System operation. The Coordinating Committee on Missouri River Mainstem Reservoir Operations held meetings semiannually until 1981 and provided recommendations to the Corps. In 1982, the Committee was dissolved because it did not conform to the provisions of the Federal Advisory Committee Act. Since 1982, to continue providing a forum for public participation, one or more open public meetings are held semiannually in the spring and fall. The fall public meeting is conducted to take public input on a draft of the AOP, which typically is published in early October each year. The spring meetings are conducted to update the public on the current hydrologic conditions and projected System operation for the remainder of the year.

The spring public meetings were held at the following locations: Kansas City, Missouri on April 7, 2003; Yankton, South Dakota on April 8, 2003; and Nebraska City, Nebraska on April 10, 2003. The attendees were given an update regarding the outlook for 2003 runoff and projected operation for the remainder of 2003. Three fall public meetings on this Draft 2003-2004 AOP will be held. The meetings are scheduled for October 28, 2003 in Pierre, South Dakota; October 29, 2003 in Omaha, Nebraska; and October 30, 2003 in Columbia, Missouri.

Preliminary Draft AOP data was presented to the Missouri River Basin Association (MRBA) on July 28, 2003.

III. MAINSTEM MASTER MANUAL REVIEW AND UPDATE AND ESA CONSULTATIONS

In August 2001, the Corps released the Revised Draft Environmental Impact Statement (EIS) on the Missouri River Master Water Control Manual Review and Update (Review and Update) that presented the impacts associated with a number of potential Water Control Plan alternatives. The next step in the EIS process is to prepare and circulate a Final EIS that presents a preferred alternative (PA). The goal is to identify a PA that serves all of the Congressionally authorized project purposes and fulfills the Corps responsibilities to Federally recognized Native American Tribes, while complying with the Endangered Species Act (ESA) and other applicable laws. To that end, the Corps has reinitiated ESA consultation with the USFWS on a proposed action that includes a water control plan for publication in an updated Missouri River Mainstem Reservoir System Master Manual (Master Manual).

This is a re-initiation of consultation because the Corps and the USFWS previously had consulted on the current Water Control Plan presented in the existing Master Manual. That consultation resulted in a Final Biological Opinion from the USFWS dated November 2000 (November 2000 BiOp). The November 2000 BiOp called for changes in releases from Gavins

Point Dam to include a "spring rise" and a "lower summer releases". The spring rise component called for an increase in releases from Gavins Point Dam of from 15,000 to 20,000 cubic feet per second (cfs) above full navigation service levels for a 4-week time period (includes a week long gradual increase and a week long gradual decrease to and from the specified spring rise amount). The spring rise was to be conducted in each year that runoff was forecast to be at or above lower quartile, but less than upper decile, and was to occur in the window of time from May 1 through June 15. The November 2000 BiOp anticipated that the spring rise would be provided on average about one-third of the years. The November 2000 BiOp also called for lower summer releases from Gavins Point Dam in each year when evacuation of water stored in the flood control storage would not interfere with the provision of this water control plan component. The November 2000 BiOp called for a step-down to the 25,000-cfs release level beginning on June 21 each year, followed by 21,000 cfs from July 15 to August 15, when releases would be returned to the 25,000-cfs level until September 1. The November 2000 BiOp did not prescribe releases after September 1. Along with the recommended release changes, the November 2000 BiOp called for the construction or restoration of a substantial amount of habitat for the endangered species and species-specific actions such as support to fish hatcheries and monitoring activities.

On July 30, 2003, the Corps transmitted a Biological Assessment to the USFWS on the proposed action. Subsequent to that correspondence the Corps and the USFWS agreed to collaboratively develop a new biological assessment that will include new information developed since the November 2000 BiOp. This new information includes, but is not limited to, results of studies indicating that the spring rise and lower summer releases will not provide the physical attributes assumed by the USFWS in the November 2000 BiOp. The new biological assessment will also discuss the question of whether the spring rise and lower summer releases described in the November 2000 BiOp are compatible with, and could be implemented under a recent decision of the Eighth Circuit Court of Appeals, South Dakota v. Ubbelohde, 330 F.3d 1014 (8th Cir. 2003), given the impacts on flood control and navigation. The new biological assessment will also include information on actions designed to avoid jeopardy to the listed species without implementing the spring rise or lower summer releases described in the November 2000 BiOp. The Corps expects the new biological assessment to be complete by the end of October 2003.

The operation described in this Draft AOP is designed to meet the operational objectives presented in the current Master Manual. It is anticipated that the ESA consultation, as well as the publication of a Final EIS that presents a preferred alternative, publication of a Record of Decision on the EIS, and the publication an updated Master Manual will be complete before March 1, 2004. Based upon the results of those processes, changes to the Water Control Plan presented in this document may occur and will be set forth in the Final AOP.

IV. FUTURE WATER SUPPLY: AUGUST 2003 - DECEMBER 2004

In preparation for developing the 2003-2004 AOP, it was necessary to estimate the appropriate water supplies to the reservoirs for the period August 2003 through December 2004. The period August through February is normally a period of relatively low and stable inflows

and can be forecast with reasonable reliability. Therefore, the August 1 most likely runoff scenario is used as input to the Basic reservoir regulation simulation in the AOP studies for this period. Two other runoff scenarios based on the August 1 most likely runoff scenario were developed for the same period. Forecasts of 80 and 120 percent of the most likely runoff scenarios are used to give a range of monthly inflows leading up to March 1, 2004. These simulations are referred to as the 80 and 120 percent of Basic simulations.

Inflows to the system after March 1 are dependent on many factors, which are impossible to forecast at the time of the AOP simulations. Therefore, simulations for the March 1, 2004 to February 28, 2005 time period use five statistically derived inflow scenarios based on an analysis of water supply records from 1898 to 1997. This approach provides a good range of simulations for dry, average, and wet conditions, and eliminates the need to forecast future precipitation, which is very difficult.

The five statistically derived inflows are identified as the Upper Decile, Upper Quartile, Median, Lower Quartile and Lower Decile runoff conditions. Upper Decile runoff (34.5 MAF) has a 1 in 10 chance of being exceeded, Upper Quartile (30.6 MAF) has a 1 in 4 chance of being exceeded, and Median (24.6 MAF) has a 1 in 2 chance of being exceeded. Lower Quartile runoff (19.5 MAF) has a 1 in 4 chance of the occurrence of less runoff, and Lower Decile (15.5 MAF) has a 1 in 10 chance of the occurrence of less runoff. There is still a 20 percent chance that a runoff condition may occur that has not been simulated; i.e., a 10 percent chance runoff could be lower than Lower Decile, and a 10 percent chance runoff could be greater than Upper Decile.

The Upper Decile and Upper Quartile simulations extend from the end of the 120 percent of Basic simulation through February 2005. Likewise, the Median simulation extends from the end of the Basic simulation, and the Lower Quartile and Lower Decile simulations extend from the end of the 80 percent of Basic simulation through February 2005.

The estimated natural flow 1/ at Sioux City, the corresponding post-1949 water use effects, and the net flow 2/ available above Sioux City are shown in ***Table I,*** where several water supply conditions are quantified for the periods August 2003 through February 2004 and the runoff year March 2004 through February 2005. The natural water supply for calendar year (CY) 2003 (actual January 2003 through July 2003 runoff plus the August 1 most likely runoff) is estimated to total 19.5 MAF.

TABLE I
NATURAL AND GROSS WATER SUPPLY AT SIOUX CITY

	Natural 1/	Post-1949 Depletions	Net 2/
	(Volumes in 1,000 Acre-Feet)		
August through February 2004 (Most Likely Runoff Scenario)			
Basic	6,700	+100	6,800
120% Basic	8,000	+200	8,200
80% Basic	5,300	+400	5,700

Runoff Year March 2004 through February 2005 (Statistical Analysis of Past Records)			
Upper Decile	34,500	-2,100	32,400
Upper Quartile	30,600	-2,000	28,600
Median	24,600	-2,400	22,200
Lower Quartile	19,500	-2,600	16,900
Lower Decile	15,500	-2,600	12,900

1/ The word "Natural" is used to designate flows adjusted to the 1949 level of basin development, except that regulation and evaporation effects of the Fort Peck Reservoir have also been eliminated during its period of operation prior to 1949. 2/ The word "Net" represents the total streamflow after deduction of the post-1949 irrigation, upstream storage, and other use effects.

V. ANNUAL OPERATING PLAN FOR 2003-2004

A. General. The anticipated operation described in this AOP is designed to meet the operational objectives presented in the current Master Manual, which was first published in the 1960's. Consideration has been given to all of the authorized project purposes, and to the needs of threatened and endangered (T&E) species, and relies on a wealth of operational experience. Operational experience available for preparation of the 2003-2004 AOP includes 13 years of operation at Fort Peck Reservoir (1940) by itself, plus 50 years of System experience as Fort Randall (1953), Garrison (1955), Gavins Point (1955), Oahe (1962), and Big Bend (1964) have been brought progressively into System operation. This operational experience includes lessons learned during the 6 consecutive years of drought of the late 1980's through 1992, the high runoff period that followed and the current 4-year drought. Runoff during the period 1993 to 1999 was greater than Upper Quartile level during 5 of those 7 years, including the record 49.0 MAF of runoff in 1997. In addition to the long period of actual operational experience, many background operational studies for the completed System are available for reference

This operational experience has shown that additional water conservation measures, beyond the specific technical criteria published in the current Master Manual, may be required to meet the operational objectives of the current Master Manual, if System water-in-storage (storage) is below 52 MAF on July 1 of any year. These additional conservation measures may be necessary during drought to offset increased release requirements for water supply due to degradation (lowering) of the channel bed, and to serve navigation while meeting the Corps' obligations, in consultation with the USFWS, under the ESA. After each runoff year (March 1 through February 28) an analysis is performed to determine how much additional water conservation, if any, is needed to compensate for releases in excess of the specific technical criteria in that runoff year. If additional water conservation measures are called for, they are applied to the next runoff year's operation.

A reanalysis of the average monthly Gavins Point releases needed to meet service level target requirements was completed in 1999. The study used the Daily Routing Model (DRM) for the period 1950 to 1996. As part of this study, the relationship between annual runoff upstream

of Sioux City and the average Gavins Point Dam release required for the navigation season was analyzed. The study concluded that generally more water was needed downstream to support navigation during years with below normal upper basin runoff than during years with higher upper basin runoff. Therefore, regulation studies since 1999 use two levels of Gavins Point release requirements: one for Median, Upper Quartile, and Upper Decile runoff scenarios, and another for Lower Quartile and Lower Decile scenarios.

The updated release requirements for full service navigation used in the development of the 2003-2004 AOP are given in ***Table II***. Releases required for minimum service navigation support are 6,000 cfs less than the numbers provided in ***Table II***. A final report detailing the procedures used in this study is available on our web site.

TABLE II
GAVINS POINT RELEASES NEEDED TO MEET
FULL SERVICE FLOW TARGETS
1950 - 1996
(Discharges in 1,000 cfs)

Runoff Scenario	Month Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Average
Median, Upper Quartile, Upper Decile	26.7	28.0	27.9	31.6	33.2	32.6	32.0	31.1	30.4
Lower Quartile, Lower Decile	29.8	31.3	31.2	34.3	34.0	33.5	33.1	31.2	32.3

Gavins Point releases during the navigation season are based on a service level determination in accordance with the March 15 and July 1 storage checks presented in the current Master Manual. In general, releases from Gavins Point Dam are adjusted as needed to meet target flow levels on the lower river. However, during the nesting season of the endangered interior least tern (tern) and the threatened piping plover (plover) care must be taken to avoid impacts to nesting areas. These two bird species are listed as Threatened and Endangered (T&E) under the ESA and are protected under that Act. Several different scenarios have been used in past years to operate the System during the nesting season. Under the Steady-Release (SR) scenario, the release from Gavins Point Dam is set in mid-May to the level expected to be required to meet downstream flow targets through August and held at that level until the end of the nesting season. This operation results in releases that exceed the amount necessary to meet downstream flow targets during the early portion of the nesting season, and may result in targets being missed if basin conditions are drier than expected during the summer.

Gavins Point releases, under the Flow-to-Target (FTT) scenario, are adjusted as needed throughout the nesting season to meet downstream flow targets and would typically result in increased releases as the nesting season progresses. This is due to reduced tributary inflows

downstream as the summer heat builds, evaporation increases, and precipitation wanes. Increasing releases as the nesting season progresses can inundate nests and chicks on low-lying habitat. The Flow-to-Target scenario conserves more water in the System than the Steady-Release scenario (approximately 600,000 AF) which keeps the lake levels at the upper three System projects at relatively higher levels. The Flow-to-Target scenario also ensures that targets on the lower river are met throughout the nesting season.

A new scenario for Gavins Point releases, which combines features of the other two options, was used during the 2003-nesting season. This scenario, called the Steady Release – Flow-to-Target (SR-FTT) scenario, sets Gavins Point releases at an initial steady rate, and then allows releases to be adjusted upward during the nesting season to meet downstream flow target.

B. <u>2003-2004 AOP Simulations</u>. One complete set of Steady-Release (SR) simulations for the 2004 runoff year is shown in the final section of this draft AOP as studies 4 through 8. March 15 and July 1 System storage checks from the current water control plan (CWCP) determine the level of support to navigation flows. A steady-release from Gavins Point from May 15 through August 31 is shown to prevent T&E bird species from nesting at low elevations and thereby help protect them from inundation. The August release shown in Table II, adjusted to the forecasted service level based on the July 1 System storage check, is used from May 15 through August 31. Two additional simulations are presented for the median runoff condition. A Median Flow-to-Target (FTT) simulation is shown as Study 9, and a Median Steady-Release - Flow-to-Target (SR-FTT) simulation is shown as Study 10. Although the maximum mid-May through August release for the Median FTT simulation is shown as 27,200 cfs in study 9, releases could be greater if needed to maintain the appropriate level of downstream flow support. The SR-FTT simulation has a 26,000 cfs Gavins Point release from May 15 through June 30, and 28,000 cfs in July and August.

The Gavins Point releases shown in this and previous AOPs are not absolute. Adjustments are made as necessary based on hydrologic conditions to meet the navigation service level as determined by the March 15 and July 1 System storage checks. Under the SR operating plan, a forecast of releases needed in August is made at the start of the nesting season based on hydrologic conditions in the basin. Once set at that level, releases are not changed during the nesting season unless a reduction in releases can be made and maintained throughout the remainder of the nesting season.

A FTT regulation was conducted successfully during the 2001 and portions of the 2002 nesting season. After consulting with the USFWS in the spring of 2003 the SR-FTT operation was used with an initial steady release of 26,000 cfs. This alternative made a larger amount of habitat available early in the nesting season and saved additional water in the upper three reservoirs than a SR operation. The SR-FTT operation also provided certainty for downstream users that releases could be increased as needed to meet flow targets. Most importantly, the T&E birds also faired well under this operation in 2003, due in large part to the timely rains that fell in the lower basin which allowed releases to remain at the 26,000 cfs level through almost the entire nesting season.

The specific technical criteria for the September 1 storage check, which is used to determine winter release rates, were not used in the AOP simulations. A minimum Gavins Point release of 12,500 cfs was used for all simulations for the winter 2003-2004 and the winter 2004-2005. This will provide downstream winter flows sufficient to allow the operation of downstream powerplants and water supply intakes, as provided for in the current Master Manual, and is based on past operational experience.

Application of the specific technical criteria for the September 1 storage check would result in winter releases in 2004-2005 for the Upper Decile simulation above the 12,500 cfs level, but Gavins Point winter releases will be held to 12,500 cfs as a water conservation measure during the current drought.

If System storage on July 1, 2004 is below 52 MAF, additional water conservation would be implemented to compensate for releases made in excess of the specific technical criteria during the 2003 runoff year. Excess releases for the 2003-2004 water year are estimated as follows: Between March 1 and March 13, 2003 Gavins Point releases were above the 10,000 cfs minimum winter release deemed necessary for downstream water supply. The volume of excess water released during this period was 64,000 acre-feet (AF). In late April 2003 Gavins Point releases were increased above the level required to meet minimum service flows to prevent T&E bird species from nesting at low elevations. Later in the nesting season, Gavins Point releases were restricted to level that did not meet minimum service targets by an order from the District Court for the District of Columbia. The net effect of these two actions during the nesting season was an excess release of 700,000 AF above minimum service flows. If the 2003-2004 winter releases average 12,500 cfs as shown in the AOP studies, an additional 451,000 AF above the 10,000 cfs minimum will be released. Therefore, an estimated total of 1.2 MAF of additional releases above the specific technical criteria will be released between March 1, 2003 and February 29, 2004. If System Storage on July 1, 2004 is greater than 52 MAF, no navigation season shortening would be implemented.

Only the Median, Lower Quartile, and Lower Decile simulations show System storage below 52 MAF on July 1, 2004. The simulations for those three runoff scenarios also show that application of the specific technical criteria result in minimum service throughout the 2004 navigation season. Shortening of the 2004 navigation season is therefore the only available option for additional water conservation. If the simulations verify, the 2004 navigation season will be shortened 40 days for Median runoff and 39 days for Lower Quartile and Lower Decile runoff to recover the 1.2 MAF of storage. Since higher Gavins Point releases are required for Lower Quartile and Lower Decile runoff to meet minimum service navigation flows, each day at 10,000 cfs results in a greater volume saved compared to Median runoff due to the larger difference between navigation and non-navigation releases. The Upper Quartile and Upper Decile simulations show that System storage on July 1 will be above 52 MAF, and therefore the navigation season would not be shortened to compensate for the additional water released above the specific technical criteria.

During the late 1980's to early 1990's drought years, a two-day-down, one-day-up peaking cycle from Gavins Point was utilized. This regulation provided for lower flows for two out of three days to conserve water in the System while ensuring that T&E bird species did not nest on

low-lying habitat. We have not included a peaking cycle in any of the simulations because of concerns voiced by the USFWS regarding negative impacts to river fish. Intrasystem releases are adjusted to best serve the multiple-purpose functions of the projects with special emphasis placed on regulation for non-listed fisheries starting in early April and for T&E bird species beginning in early May and continuing through August. Gavins Point releases for all runoff conditions are at less than full service flows due to low System storage.

None of the simulations reach the desired 57.1 MAF System storage level on March 1, 2005. The Lower Quartile, Median, Upper Quartile and Upper Decile simulations include releases that provide a steady to rising lake level in the three large upper reservoirs during the spring fish spawn period. Similar regulation in the past has resulted in a higher fish reproduction success. As previously stated, Gavins Point releases will not be cycled to conserve water under any of the five studied runoff scenarios. However, it may be necessary to cycle releases for flood control operations during the T&E species-nesting season.

Actual System operation from January 1 through July 31, 2003 and the operating plans for each project for the remainder of 2003 with the Basic simulation and for CY 2004 using the five runoff scenarios described on page 4 are presented on ***Plates 3 through 8***, inclusive. An exception is the omission of Big Bend, since storage at that project is relatively constant and average monthly releases are essentially the same as those at Oahe. These plates also show, on a condensed scale, actual operations during the period 1953 through 2002.

Plate 9 illustrates for Fort Peck, Garrison, Oahe, and Gavins Point Dams the actual reservoir releases (Regulated Flow) as well as the Missouri River flows (Unregulated Flow) that would have resulted if the reservoirs were not in place during the period January 2002 through July 2003. ***Plate 10*** presents past and simulated gross monthly, average power generation, and gross peaking capability for the System.

C. <u>Operation during the 2003 Navigation and T&E Species Nesting Seasons.</u> The 2003 navigation season opened on the normal opening date of April 1 at the mouth near St. Louis. In late April when piping plovers began to initiate nesting activity, Gavins Point releases were increased to 26,000 cfs in accordance with the plan developed in consultation with the USFWS and approved in their April 21, 2003 Supplemental Biological Opinion. Gavins Point releases were held at 26,000 cfs from April 28 through July 8 when they were reduced to 25,000 cfs to comply with an order from the Federal District Court for the District of Columbia which required the Corps to adjust releases to comply with the November 2000 BiOp. Releases were then increased back to 26,000 cfs on July 29 to meet downstream targets and to comply with a ruling from the 8th Circuit Court. Releases remained at 26,000 cfs while discussions were held to determine which Federal Court Order had precedent and standing. Following a determination that the 8th Circuit Court ruling did not yet conflict with the D.C. District Court Order, releases were reduced to 25,000 cfs on August 11 and to 21,000 cfs on August 12. Prior to the release reduction a short period of time was given for river interests to protect their property and for those vessels that could not operate at the lower flow levels to safely leave the river. Continuing to follow the D.C. District Court Order, release increases were initiated on August 15 and a release rate of 25,000 cfs was reached on August 16. At that time, this release was 2,000 cfs less than that required to meet minimum service navigation flows at downstream targets.

Releases remained at 25,000 cfs until September 1 when they were stepped up in 2000 cfs increments per day to the level necessary to meet minimum service flow targets downstream (30,500 cfs). On August 25, 2003 word was received from Omaha District that the last of the chicks had fledged and that all constraints on System operations due to tern and plover nesting could be removed.

D. Operation for the Balance of the 2003 Navigation Season. Releases through the fall season were adjusted as needed to provide minimum service (6,000 cfs less than full service) flow support to navigation as computed by the July 1 System storage check. System storage was 45.1 MAF on July 1, 2003, substantially less than the 59.0 MAF minimum storage required to provide full service flows. The current storage is also much less than the 50.5 MAF July 1 level required for greater than minimum service flows; therefore, a significant System storage gain will have to occur before a service level greater than minimum service is provided. The 2003 navigation season was reduced by 6 days to compensate for additional water used during the winter of 2002-2003 to provide downstream water supply. The 2003 season shortening would have been greater had the flows provided during the summer of 2002 been at minimum service rather than several thousand cfs less during July through mid August. This period of reduced flows offset some of the extra water that was released during the previous winter period and this resulted in a reduction in the number of days of season shortening.

The total runoff for 2003 is expected to be 19.5 MAF. All three sources of runoff into the System (mountain snowpack, plains snowpack and rainfall) have been below normal in 2003. System storage was 43.1 MAF on December 1 at the close of the 2002 navigation season. The winter of 2002-2003 brought virtually no significant plains snowpack. The mountain snowpack peaked in the reach above Fort Peck at 92 percent of normal on April 8, which was about 1 week earlier than normal. The mountain snowpack in the reach between Fort Peck and Garrison peaked at 101 percent of normal on April 9. Runoff in January and February were 66 and 65 percent of normal, respectively. March produced 102 percent of normal as the warmer temperatures melted some of the low elevation mountain snow. March is the only month this year with above normal runoff. April was only 57 percent of normal. The months of May, June, and July were well below average at 78, 82 and 54 percent of normal, respectively, because of the below normal mountain snowmelt above Fort Peck and the overall drought conditions upstream. The closing dates for ending the 2003 navigation season will be November 16 at Sioux City, November 18 at Omaha, November 19 at Nebraska City, November 21 at Kansas City, and November 25 at the mouth of the Missouri River near St. Louis.

Simulations for the August 1 to December 1 period indicate that 2.4 billion kilowatt hours (kWh) of energy will be generated by the System powerplants, 1.3 billion kWh below normal.

Fort Peck Dam releases will average 7,000 cfs through mid-September, and then be reduced to the minimum 4,000 cfs for the remainder of the 2003 navigation season. Fort Peck Lake is expected to decline 1.3 feet from elevation 2212.3 feet above mean sea level (msl) to 2211.0 feet msl by the end of the navigation season, 22.8 feet lower than the 1967-2002 long-term average.

Garrison Dam releases will average 21,000 cfs until mid-September, then gradually be lowered to the minimum 10,000 cfs by late September until the end of the navigation season. The level of Lake Sakakawea is expected to decline by 3.3 feet from elevation 1826.1 feet msl to 1822.8 feet msl by the end of the navigation season, 15.0 feet below the long-term average.

Oahe Dam releases will be reduced from an August average of 26,300 cfs to 8,000 cfs in late November to achieve the scheduled Fort Randall drawdown to elevation 1337.5 feet msl by the end of the navigation season. Releases will be adjusted to serve the variable power loads. Lake Oahe will lower steadily by 5.5 feet throughout the period from elevation 1586.4 to 1580.9 feet msl by the close of the navigation season, 20.4 feet lower than the long-term average.

Big Bend Dam releases will generally parallel those from Oahe. Lake Sharpe will fluctuate between 1420.0 and 1421.0 feet msl for weekly cycling during high power load periods. Reservoir fluctuations of a foot are scheduled during most weeks in order to follow peaking power demands. Storage lost during the week is regained during the succeeding weekend period of lower power demands.

Fort Randall Dam releases will generally parallel those from Gavins Point. Lake Francis Case will fall steadily during the August-through-November period from the end-of-July elevation of 1354.0 feet msl to 1337.5 feet msl by November 22. This drawdown will provide sufficient capacity to store a reasonable level of power releases from Oahe and Big Bend during the winter season.

Gavins Point Dam releases will be in the range of 25,100 to 27,500 cfs to continue to provide support to meet minimum service flows during the remainder of the 2003 navigation season. The 2003 navigation season will end 6 days early to compensate for the extra water released above the specific technical criteria during the 2002 runoff year. Lewis and Clark Lake will rise one foot to elevation 1207.5 feet msl during September and will be maintained at that elevation through the winter.

E. Operating Plan for the Winter of 2003-2004. Due to low System storage, the specific technical criteria presented in the current Master Manual for the September 1 storage check were not used to determine winter 2003-2004 and winter 2004-2005 Gavins Point releases in the simulations. At a System storage level of 58.0 MAF or above on September 1, the specific technical criteria calls for a full service release rate for the following winter, and minimum service releases if system storage is at or below 43.0 MAF. Average full and minimum service winter release rates from Fort Randall Dam are 15,000 and 5,000 cfs, respectively. The storage on September 1, 2003, given the most likely runoff scenario, would be 43.3 MAF, only 0.3 MAF above the minimum service storage check. The September 1 storage check specifies a Fort Randall Dam winter release rate of only 5,200 cfs. This corresponds to a Gavins Point Dam winter release of 6,600 cfs, which is much too low based on operational experience with winter ice. Therefore, winter Gavins Point releases in all simulations are set to a minimum of 12,500 cfs for the winter of 2003-2004 and the winter of 2004-2005. It may be necessary at times to increase Gavins Point releases to provide adequate downstream flows if ice jams or blockages form which temporarily restrict flows. These events are expected to occur infrequently and be of short duration based on past experiences. It is anticipated that this year's winter release will be

adequate to serve all downstream water intakes except for very short periods during significant river ice formation or ice jamming.

For the winter period from the close of the 2003 navigation season on November 25, 2003 until the opening of the 2004 navigation season on April 1, 2004, operations are expected to be as follows:

Fort Peck Dam releases are expected to average 8,000 cfs in December and near 8,500 cfs in January and February. The December release is 2,000 cfs less than the 1967-2002 average and the January and February releases are 3,000 cfs and 3,300 cfs below average, respectively. The Basic simulation shows Fort Peck Lake will lower 2.0 feet to elevation 2209.0 feet msl by the end of the winter period. Carryover multiple purpose storage in the three large upper reservoirs will be near a balanced condition on March 1, 2004. The lake is expected to rise 1.2 feet to elevation 2210.2 feet msl by March 31, 22.1 feet below normal.

Garrison Dam releases will be adjusted to serve winter power loads and balance System storage. Releases will be scheduled at 20,000 cfs at the time of normal freeze-in and likely will have to be reduced for a short period to 18,000 cfs during the freeze-in in the Bismarck area in an attempt to not exceed the target 13-foot stage at the Bismarck gage. Flood stage is 16 feet. Garrison Dam releases are expected to average 20,000 cfs at the beginning of the winter period and increase slightly to 21,000 to 21,500 cfs in January and February, 2,800 and 3,600 cfs less than normal. Lake Sakakawea is expected to lower from near elevation 1822.8 feet msl to elevation 1816.9 feet msl by March 1, 20.6 feet below the base of the annual flood control storage zone. The Median simulation indicates the lake will rise to elevation 1818.5 feet msl by March 31, which would be 16.9 feet below normal.

Oahe Dam releases for the winter season will provide backup for the Fort Randall and Gavins Point Dam releases plus fill the recapture space available in Lake Francis Case consistent with anticipated winter power loads. Monthly average releases may vary substantially with fluctuations in power loads occasioned by weather conditions but, in general, are expected to average about 15,000 cfs. Daily releases will vary widely to best meet power loads. Peak hourly releases, as well as daily energy generation, will be constrained to prevent urban flooding in the Pierre and Fort Pierre areas if severe ice problems develop downstream of Oahe Dam. This potential reduction has been coordinated with the Western Area Power Administration. The Lake Oahe level is expected to gradually rise from elevation 1580.9 feet msl at the end of the 2003 navigation season to elevation 1586.2 by March 1, then rise to elevation 1589.0 feet msl by the end of March, 17.3 feet below normal.

Lake Sharpe at Big Bend Dam will be maintained in the normal 1420.0 to 1421.0 feet msl range during the winter.

Fort Randall Dam releases will average near 11,000 cfs. Lake Francis Case is expected to rise from 1337.5 feet msl at the end of the 2003 navigation season to near elevation 1350.0 feet msl, the seasonal base of flood control, by March 1. However, if the plains snowpack flood potential downstream of Oahe Dam is quite low at that time, measures will be taken to raise Lake Francis Case to near elevation 1353.0 feet msl by March 1. It is likely that a Lake Francis

Case level above elevation 1353.0 feet msl, to as high as 1355.2, will be reached by the end of the winter period on March 31, if runoff conditions permit. The level of Lake Francis Case above the White River delta near Chamberlain, South Dakota will likely remain at a higher elevation than the lake below the delta from mid-October through December, due to the damming effect of this delta area.

Gavins Point Dam releases will be gradually reduced about mid-November for the 6-day shortened navigation season to a winter release level of 12,500 cfs at Sioux City. These releases should be adequate to maintain water levels necessary during freeze-in for downstream water intakes, however, adjustments to the releases may be required if significant reduction in flows occurs downstream due to ice blockages. Lewis and Clark Lake will generally be near elevation 1207.5 feet msl until late February when it will be lowered to elevation 1206.0 feet msl for controlling spring floods, primarily from the Niobrara River and Ponca Creek along the Fort Randall Dam to Gavins Point Dam reach.

System storage for all five runoff conditions will be substantially below the base of the annual flood control zone by March 1, 2004, the beginning of next year's runoff season.

F. Operations During the 2004 Navigation Season. The Upper Decile, Upper Quartile, Median, Lower Quartile, and Lower Decile runoff scenarios studied for this year's AOP follow the specific technical criteria presented in the current Master Manual for navigation service flow support. The normal 8-month navigation season length is shortened for Median, Lower Quartile, and Lower Decile as shown in ***Table III*** to compensate for the extra water released during the following periods: the non-navigation portion of March 2003, the 2003 navigation season, and anticipated winter 2003-2004 release requirements above the specific technical criteria. Releases from Fort Peck, Garrison, and Fort Randall Dams will follow repetitive daily patterns from early May, at the beginning of the T&E species nesting season, to the end of the nesting in late August. As previously stated, steady Gavins Point releases for all five runoff scenarios are shown during the tern and plover nesting season (mid-May to the end of August) to keep birds from nesting at low elevations. The Flow-to-Target simulation for Median runoff follows the March 15 and July 1 System storage checks. All runoff scenarios except Lower Decile would provide steady to rising pool levels in the spring fish spawn period. Releases from Fort Peck and Garrison during April and May for the Lower Quartile simulation were adjusted to provide steady to rising pool levels. Lower Decile simulations have equal declines in Fort Peck Lake, Lake Sakakawea, and Lake Oahe during April and May.

All five runoff scenarios studied for this year's AOP provide gradually increasing Gavins Point releases to meet navigation season flow rates at the mouth of the Missouri near St. Louis by April 1, 2004, the normal navigation season opening date. The corresponding dates at upstream locations are Sioux City, March 23; Omaha, March 25; Nebraska City, March 26; and Kansas City, March 28. The studies illustrated on ***Plates 3 through 8*** and summarized in ***Table III*** are based on providing less than full service flows for all runoff conditions, a full 8-month season for Upper Decile and Upper Quartile runoff, and a shortened season for Median, Lower Quartile, and Lower Decile runoff. Upper Decile releases are 6,000 cfs less than full service (minimum service) in the spring and 3,500 cfs less than full service in the summer and fall. Releases for Upper Quartile runoff are 6,000 cfs below full service in the spring and 4,900 cfs

less than full service during the summer and fall. Minimum service flows with a 39- to 40-day shortened navigation season will be provided should Median, Lower Quartile, or Lower Decile runoff occur.

Navigation flow support for the 2004 season will be determined by actual System storage on March 15 and July 1. If the July 1 System storage check indicates an increase in service level, the increase will be delayed until the end of the T&E bird species nesting season. Gavins Point Dam releases may be quite variable during the 2004 navigation season but are expected to range from 21,000 to 30,000 cfs. Release reductions necessary to minimize downstream flooding are not reflected in these monthly averages but will be instituted as conditions warrant.

Simulated storages and releases for the System and individual reservoirs within the System are shown on ***Plates 3 through 8*** for the Steady-Release (SR) simulations. Flow-to-Target (FTT) and the Steady-Release - Flow-to-Target (SR-FTT) plots are not shown because the difference cannot be seen at the scale provided on ***Plate 4***. Ample storage space exists in the System to control flood inflows under all conditions studied. ***Table III*** summarizes the navigation service support projected for the 2004 navigation season for the SR simulation for all 5 runoff levels. Also presented are the navigation support levels projected for the FTT and SR-FTT simulations for the median runoff condition.

Two modified reservoir operations shown in previous AOPs, the Fort Peck "mini-test" and unbalancing the upper three reservoirs will not be implemented in 2004 due to low System storage. When System storage recovers sufficiently, the Corps anticipates that both these operations will be implemented.

The first of these two modified operations is a test of flow modifications for the endangered pallid sturgeon. When Fort Peck Lake has adequate water above the spillway crest by mid to late May of any year, a T&E flow modification "mini-test" will be conducted in early June to monitor effects of higher spring releases and warmer water released from the spillway. The purposes of the mini-test are to allow for an evaluation of the integrity of the spillway structure, to test data collection methodology, and to gather information on river temperatures with various combinations of flow from the spillway and powerhouse. Streambank erosion and fishing impacts will also be monitored.

During the Fort Peck "mini-test," which will last about 4 weeks, flows will vary from 8,000 to 15,000 cfs as various combinations of spillway and powerplant releases are monitored. The maximum spillway release of 11,000 cfs will combine with a minimum powerplant release of 4,000 cfs for 6 days. This operation will be timed to avoid lowering the lake during the forage fish spawn. The "mini-test" will not be conducted if sufficient flows will not pass over the spillway crest (elevation 2225 feet msl). A minimum lake elevation of about 2229 feet msl is needed during the test to avoid unstable flows over the spillway. Results of the AOP simulations show that this elevation will not be achieved in 2004 for any of the five runoff scenarios. A more extensive test with a combined 20,000 to 30,000 cfs release from Fort Peck is scheduled to be conducted beginning in early June in the year following the "mini-test" to allow further tests of the integrity of the spillway and to determine if warm water releases will benefit the native

river fishery. Peak outflows during the full test would be maintained for 2 weeks within the 4-week test period.

TABLE III
NAVIGATION SERVICE SUPPORT
FOR THE 2004 SEASON

STEADY-RELEASE SIMULATIONS

	Runoff Scenario (MAF)	2004 System Storage March 15 (MAF)	2004 System Storage July 1 (MAF)	Flow Level Above or Below Full Service (in cfs) Spring	Flow Level Above or Below Full Service (in cfs) Summer/Fall	Length of Season (Months)
U.D.	34.5	44.5	54.0	-6,000	-3,500	8
U.Q.	30.6	44.3	52.2	-6,000	-4,900	8
Med	24.6	42.1	47.6	-6,000	-6,000	8 - 40 days
L.Q.	19.5	40.6	43.4	-6,000	-6,000	8 - 39 days
L.D.	15.5	40.4	41.1	-6,000	-6,000	8 - 39 days

FLOW-TO-TARGET AND
STEADY-RELEASE - FLOW-TO-TARGET SIMULATIONS

	Runoff Scenario (MAF)	2004 System Storage March 15 (MAF)	2004 System Storage July 1 (MAF)	Flow Level Above or Below Full Service (in cfs) Spring	Flow Level Above or Below Full Service (in cfs) Summer/Fall	Length of Season (Months)
FTT	24.6	42.1	48.0	-6,000	-6,000	8 - 40 days
SR-FTT	24.6	42.1	47.7	-6,000	-6,000	8 - 40 days

The second modified operation involves unbalancing the three large upper reservoirs as shown on ***Table IV*** to benefit reservoir fishery and the 3 T&E species. AOP studies indicate the large reservoirs will be balanced on March 1, 2004. Should Upper Decile or Upper Quartile runoff occur in 2004, studies indicate Fort Peck Lake will be about 4.0 feet above a balanced condition, Lake Sakakawea will be 3.0 feet below a balanced condition, and Lake Oahe will be balanced on March 1, 2005. Reservoir unbalancing is computed based on the percentage of the carryover multiple purpose pool that remains in Fort Peck Lake, Lake Sakakawea, and Lake Oahe. This would permit the Fort Peck Dam "mini-test" in the spring of 2005, as described in the previous paragraph. Median or lower runoff does not sufficiently refill the reservoirs in 2004 and no unbalancing or "mini-test" would occur in spring 2005. The unbalancing would alternate at each project; high one year, float (normal operation) the next year, and low the third year as shown on ***Table IV***. ***Table V*** shows the lake elevations proposed by the MRNRC at which the

unbalancing would be terminated. ***Table V*** indicates that no reservoir unbalancing should occur for any of the five runoff scenarios in 2004.

Summary of Reservoir Regulation Activities for T&E Species and Fish Propagation Enhancement

As discussed in the section above, the 2003-2004 AOP includes no provisions for unbalancing the Fort Peck, Garrison, and Oahe reservoirs for any of the runoff scenarios. The criteria for unbalancing are based on recommendations provided by the MRNRC and the USFWS. Under all simulations, System storage will be below the minimum levels under which unbalancing is recommended by either the MRNRC or the USFWS.

TABLE IV
RESERVOIR UNBALANCING SCHEDULE

	Fort Peck		**Garrison**		**Oahe**	
Year	***March 1***	***Rest of Year***	***March 1***	***Rest of Year***	***March 1***	***Rest of year***
1	High	Float	Low	Hold Peak	Raise & hold during spawn	Float
2	Raise & hold during spawn	Float	High	Float	Low	Hold peak
3	Low	Hold peak	Raise & hold during spawn	Float	High	Float

Notes:

Float year: Normal operation, then unbalance 1 foot during low pool years or 3 feet when System storage is near 57.1 MAF on March 1.

Low year: Begin low, then hold peak the remainder of the year.

High year: Begin high, raise and hold pool during spawn, then float.

TABLE V
MRNRC RECOMMENDED
RESERVOIR ELEVATION GUIDELINES
FOR UNBALANCING

	Fort Peck	**Garrison**	**Oahe**
Implement unbalancing if March 1 reservoir elevation is above this level.	2234 feet msl	1837.5 feet msl	1607.5 feet msl
Implement unbalancing if March 1 reservoir elevation is in this range **and** the pool is expected to raise more than 3 feet after March 1.	2227-2234 feet msl	1827-1837.5 feet msl	1600-1607.5 feet msl
Scheduling Criteria	Avoid lake level decline during spawn period which ranges from April 15 – May 30	Schedule after spawn period of April 20 – May 20	Schedule after spawn period of April 8 – May 15

Also, as previously stated, the Corps has re-initiated ESA consultation with the USFWS on a proposed action designed to ensure the continued existence of the T&E species on the Missouri River. The description of action for this consultation includes proposes release changes and tests from System dams, but does not include provisions for a spring rise and low summer flow from Gavins Point Dam as prescribed by the November 2000 BiOp. It is anticipated that the ESA consultation, as well as the publication of a Final EIS that presents a preferred alternative, publication of a Record of Decision on the EIS, and the publication an updated Master Manual will be complete before March 1, 2004. In addition to water management, other activities are also being undertaken by the Corps to assist in the survival of the endangered species on the Missouri River. Habitat creation for terns, plovers and pallid sturgeon, pallid sturgeon hatchery propagation, and a variety of studies are examples of some of these activities.

Fort Peck Dam releases during the T&E bird-nesting season will range from 8,000 cfs for Upper Decile runoff to 10,000 cfs for Median and below runoff. This regulation should result in habitat conditions for nesting terns and plovers similar to what was available in 2003.

If flood flows enter the Missouri River below the project during the nesting season, hourly releases will be lowered to no less than 3,000 cfs in order to keep traditional riverine fish rearing areas continuously inundated while helping to lower river stages at downstream nesting sites. April releases should be adequate for trout spawning below the project. A rising pool in the April-to-May sport fish-spawning season will be dependent upon the ever-changing daily inflow pattern to the reservoir but appears possible with all but Lower Decile runoff simulations. The T&E flow modification “mini-test” will not be run under any runoff scenario. Fort Peck Lake must be at elevation 2229 msl to allow releases through the spillway.

Garrison Dam releases will be reduced during the tern and plover-nesting season under all runoff scenarios. The reductions will be in the 500 to 1,000 cfs range. Hourly peaking will be limited to no more than 30,000 cfs for 6 hours if the daily average release is lower than 28,000 cfs. This will limit peak stages below the project for nesting birds.

Lake Sakakawea elevations will not reach levels considered necessary for optimum fish spawning during the month of May for any of the runoff scenarios. Given Lower Quartile or higher runoff the lake should rise during the fish spawn season, however, the actual timing of the rise in lake elevation will be dependent upon the pattern of inflow at that time.

Oahe Dam releases in the spring and summer will back up those from Gavins Point Dam. Oahe Reservoir elevation in the spring will be steady or rising given Lower Quartile or higher runoff. The actual timing of the rise in lake elevation will be dependent upon the pattern of inflow at that time. Under all AOP simulations, the Oahe pool will fall during the summer.

Fort Randall Dam will be operated to provide for a pool elevation near 1355 feet msl during the fish spawn period, provided water can be supplied from other reservoirs for downstream uses, and the lake will not be drawn down below elevation 1337.5 feet msl in the fall to ensure adequate supply for water intakes. Hourly releases from Fort Randall Dam during the 2004 nesting season will be limited to 37,000 cfs. Daily average flows may be increased every third day to preserve the capability of increasing releases later in the summer if conditions turn dry.

Gavins Point Dam. Based on 2003 nesting season results and planned habitat development activities, it is anticipated that sufficient habitat will be available above the release rates to provide for successful nesting. The resulting steady release prevents inundation of nests and chicks. Cycling releases every third day is not planned during the 2004 nesting season except during downstream flood control operations. If the results of ESA consultation allows for the replacement of the steady-release plan with the flow-to-target regulation, releases will be set to meet the specified navigation service level with increases made as necessary during the T&E bird species nesting season.

The Gavins Point pool will be operated near 1206.0 feet msl in the spring and early summer with variations day to day due to rainfall runoff. Greater fluctuations occur in the river, increasing the risk of nest inundation in the upper end of the Gavins Point pool. Several factors contribute to the increased risk of nest inundation in the upper end of the Gavins Point pool. First, because there are greater numbers of T&E species nesting below the Gavins Point Dam project that must be preserved, Gavins Point Dam releases are restricted during the nesting season. Second, unexpected rainfall runoff between Fort Randall Dam and Gavins Point Dam can result in sudden pool rises because the Gavins Point project has a smaller storage capacity than the other System reservoirs. Third, the operation of Gavins Point for downstream flood control may necessitate sudden release reductions to prevent downstream bird losses. And finally, high releases required in wet years make nest inundation more likely. When combined, all these factors make it difficult and sometimes impossible to prevent inundation of nests in the upper end of Lewis and Clark Lake. The pool will be increased to elevation 1207.5 feet msl following the nesting season.

VI. SUMMARY OF RESULTS EXPECTED IN 2003-2004

With System operations in accordance with the 2003-2004 AOP outlined in the preceding pages, the following results can be expected.

A. Flood Control. All runoff scenarios studied will begin next year's runoff season on March 1, 2004, substantially below the desired 57.1 MAF base of annual flood control and multiple use zone. Therefore, the entire System flood control zone plus an additional 14.1 to 17.3 MAF of the carryover multiple use zone will be available to store runoff. The System will be available to significantly reduce peak discharges and store a significant volume of water for all floods that may originate above the System.

Remaining storage in the carryover multiple use zone will be adequate to provide support for all of the other multiple purposes of the System, though at reduced levels.

B. Water Supply and Water Quality Control. Although below normal winter releases are being provided for all five runoff scenarios, all water supply and water quality requirements on the Missouri River both below Gavins Point Dam and between System reservoirs should be met for all flow conditions studied. It is possible with the low winter releases that ice formation or ice jams may temporarily reduce river stages to levels below which some intakes can draw water. Therefore, during severe cold spells, experience has shown that for brief periods it may be necessary to increase Gavins Point releases to help alleviate water supply problems.

C. Irrigation. Scheduled releases from the System reservoirs will be ample to meet the volumes of flow required for irrigation diversions from the Missouri River. Some access problems may be experienced, however, if drought conditions persist. Tributary irrigation water usage is fully accounted for in the estimates of water supply.

D. Navigation. Service to navigation in 2004 would be scheduled below full service flow support for all five runoff scenarios. Reductions below full service for the Steady-Release, Flow-to-Target, and Steady-Release-Flow-to-Target simulations are shown in ***Table III***. Although these simulations provide a comparison of typical flow support under varying runoff conditions that cover 80 percent of the historic runoff conditions, the actual rate of flow support for the 2004 navigation season will be based on actual System storage on March 15 and July 1, 2004.

Upper Decile and Upper Quartile simulations show an 8-month navigation season. The Median, Lower Quartile and Lower Decile simulations estimate the season shortening at 39 to 40 days. The anticipated service level and season length for all runoff conditions simulated are shown in ***Table III***.

E. Power. ***Tables VI through IX*** give the estimated monthly System load requirements and hydropower supply of the Eastern Division, Pick-Sloan Missouri Basin Program (P-S MBP), from August 2003 through December 2004. Estimates of monthly peak demands and energy

include customer requirements for firm, short-term firm, summer firm, peaking, and various other types of power sales, System losses, and the effects of diversity. Also included in the estimated requirements are deliveries of power to the Western Division, P-S MBP, to help meet its firm power commitments.

F. Recreation, Fish and Wildlife. The basic operations of the System will continue to provide recreation and fish and wildlife opportunities in the project areas and along the Missouri River as well as other benefits of a managed system. As a result of the drought, lake levels will remain well below normal and recreation access will be limited at some locations. Special operational adjustments incorporating specific objectives for these purposes will be accomplished whenever possible. Conditions should be favorable for the many visitors who enjoy the camping, boating, fishing, hunting, swimming, picnicking, and other recreational activities associated with the System reservoirs and for increasing usage of the regulated reaches of the Missouri River downstream of the reservoirs.

Boat ramps that were lowered and low water ramps that were constructed during the drought of the late 1980's to early 1990's and the further improvements made in 2003 should provide adequate lake access next year even under the Lower Decile runoff scenario. However, boat ramps in a few areas where the ramps could not be extended may become unusable. This will affect the normal use patterns, as visitors will have to seek out areas with usable boat ramps. Boat ramp elevations for Fort Peck, Garrison, Oahe and Fort Randall Reservoirs were added in 2001 to the Missouri River Basin Water Management Division web site at: www.nwd-mr.usace.army.mil/rcc.

The effects of the simulated System operation during 20032-2004 on fish and wildlife are included in the section entitled, "Summary of Reservoir Regulation Activities for T&E Species and Fish Propagation Enhancement."

TABLE VI
PEAKING CAPABILITY AND SALES (Steady-Release Regulation)
(1,000 kW at plant)

2003	Estimated Committed Sales*	Expected C of E Capability 120%	Basic	80%	Expected Bureau Capability 120%	Basic	80%	Expected Total System Capability 120%	Basic	80%
Aug	1075	2056	2053	2050	199	196	192	2255	2249	2242
Sep	868	2049	2039	2032	201	195	191	2250	2234	2223
Oct	791	2027	2021	2011	202	195	191	2229	2216	2202
Nov	1028	2008	1990	1977	202	195	189	2210	2185	2166
Dec	1097	1987	1966	1951	199	192	185	2186	2158	2136
2004										
Jan	1137	2011	1986	1968	195	189	181	2206	2175	2149
Feb	1048	2025	1999	1980	192	188	178	2217	2187	2158

		U.D.	U.Q.	Med.	L.Q.	L.D.	U.D.	U.Q.	Med.	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.
Mar	976	2099	2091	2056	2025	2021	190	190	191	178	178	2289	2281	2247	2203	2199
Apr	966	2124	2112	2065	2025	2019	191	191	193	178	179	2315	2303	2258	2203	2198
May	823	2146	2129	2076	2030	2015	199	199	199	187	189	2345	2328	2275	2217	2204
Jun	920	2187	2165	2109	2055	2022	213	213	208	196	199	2400	2378	2317	2251	2221
Jul	1087	2200	2174	2111	2048	2007	213	213	211	197	198	2413	2387	2322	2245	2205
Aug	1075	2192	2167	2103	2033	1987	209	209	208	196	195	2401	2376	2311	2229	2182
Sep	868	2190	2164	2074	1998	1950	208	207	207	197	196	2398	2371	2281	2195	2146
Oct	791	2181	2154	2061	1979	1929	207	206	207	199	196	2388	2360	2268	2178	2125
Nov	1028	2151	2121	2065	1980	1930	206	206	204	198	196	2357	2327	2269	2178	2126
Dec	1097	2138	2109	2041	1962	1901	200	200	199	193	194	2338	2309	2240	2155	2095

* Estimated sales, including system reserves. Power in addition to hydro production needed for these load requirements wil be obtained from other power systems by interchange or purchase.
** Total output of Canyon Ferry and 1/2 of the output of Yellowtail powerplant.

TABLE VII
ENERGY GENERATION AND SALES (Steady-Release Regulation)
(Million kWh at plant)

2003	Estimated Committed Sales*	Expected C of E Generation 120%	Basic	80%	Expected Bureau Generation ** 120%	Basic	80%	Expected Total System Generation 120%	Basic	80%
Aug	775	778	788	797	62	51	51	840	839	848
Sep	667	657	714	722	59	48	48	716	762	770
Oct	675	503	533	540	57	48	47	560	581	587
Nov	723	429	401	406	57	47	44	487	448	450
Dec	850	521	513	517	62	48	45	582	561	562
2004										
Jan	837	546	522	526	61	48	45	607	570	571
Feb	794	489	493	497	56	44	41	545	537	538

		U.D.	U.Q.	Med.	L.Q.	L.D.	U.D.	U.Q.	Med.	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.
Mar	734	408	443	432	481	476	59	59	47	43	43	467	502	478	524	519
Apr	689	486	514	530	647	650	83	83	54	40	30	570	597	584	687	680
May	640	667	672	679	808	788	122	122	67	44	35	789	794	746	852	823
Jun	696	775	757	735	740	726	143	143	77	46	37	919	900	812	786	763
Jul	775	857	831	818	814	791	151	126	77	50	41	1008	957	895	865	832
Aug	780	870	837	777	771	746	99	93	78	50	41	969	930	855	822	787
Sep	666	749	721	509	527	531	95	89	74	49	40	844	809	583	576	571
Oct	673	604	571	450	459	463	93	89	74	48	50	698	660	524	507	513
Nov	723	552	525	353	339	329	89	85	79	55	47	641	610	432	395	376
Dec	826	576	580	547	548	501	91	92	81	57	49	667	672	628	604	551
CY TOT	8833	7580	7486	6846	7158	7024	1144	1099	799	568	499	8724	8584	7645	7725	7523

* Estimated sales including system reserves and losses. Power in addition to hydro production needed for these load requirements will be obtained from other systems by interchange or purchase.
** Total output Canyon Ferry and 1/2 output of Yellowtail powerplant.

TABLE VIII
PEAKING CAPABILITY AND SALES (Flow-to-Target & SR-FTT)
(1,000 kW at plant)

2003	Estimated Committed Sales*	Expected C of E Capability Basic		Expected Bureau Capability Basic	Expected Total System Capability Basic	
Aug	1075	2053		196	2249	
Sep	868	2039		195	2234	
Oct	791	2021		195	2216	
Nov	1028	1990		195	2185	
Dec	1097	1966		192	2158	
2004						
Jan	1137	1986		189	2175	
Feb	1048	1999		188	2187	
		Med. FTT	Med. SR-FTT	Med.	Med. FTT	Med. SR-FTT
Mar	976	2056	2056	191	2247	2247
Apr	966	2065	2065	193	2258	2258
May	823	2078	2077	199	2277	2276
Jun	920	2116	2111	208	2324	2319
Jul	1087	2119	2112	211	2330	2323
Aug	1075	2111	2103	208	2319	2311
Sep	868	2082	2074	207	2289	2281
Oct	791	2069	2061	207	2276	2268
Nov	1028	2073	2065	204	2277	2269
Dec	1097	2049	2042	199	2248	2241

* Estimated sales, including system reserves. Power in addition to hydro production needed for these load requirements wil be obtained from other power systems by interchange or purchase.
** Total output of Canyon Ferry and 1/2 of the output of Yellowtail powerplant.

TABLE IX
ENERGY GENERATION AND SALES (Flow-to-Target & SR-FTT)
(Million kWh at plant)

2003	Estimated Committed Sales*	Expected C of E Generation Basic		Expected Bureau Generation ** Basic	Expected Total System Generation Basic	
Aug	775	788		51	839	
Sep	667	714		48	762	
Oct	675	533		48	581	
Nov	723	401		47	448	
Dec	850	513		48	561	
2004						
Jan	837	522		48	570	
Feb	794	493		44	537	
		Med. FTT	Med. SR-FTT	Med.	Med. FTT	Med. SR-FTT
Mar	734	432	432	47	479	479
Apr	689	530	530	54	584	584
May	640	608	667	67	675	734
Jun	696	615	711	77	692	788
Jul	775	771	837	77	848	914
Aug	780	757	789	78	835	867
Sep	666	516	513	74	590	587
Oct	673	457	454	74	531	528
Nov	723	352	355	79	431	434
Dec	826	544	547	81	625	628
CY TOT	8833	6597	6850	799	7396	7649

* Estimated sales including system reserves and losses. Power in addition to hydro production needed for these load requirements will be obtained from other systems by interchange or purchase.
** Total output Canyon Ferry and 1/2 output of Yellowtail powerplant.

G. System Storage. If presently anticipated runoff estimates based upon normal precipitation materialize, System storage will total about 40.9 MAF at the close of CY 2003, tying the previous record low end-of-year storage set in 1990. This year-end storage would be 1.8 MAF less than the 42.7 MAF experienced on December 31, 2002, and 14.1 .MAF less than the 1967 to 2002 average. The previous lowest storage prior to the 1988-1992 drought was 50.9 MAF in 1981. The end-of-year storages have ranged from a maximum of 60.9 MAF, which occurred in 1975, to the 1990 minimum of 40.9 MAF. Total System storage on December 31, 2004 is presented in ***Table X*** for the five runoff scenarios simulated.

H. Summary of Water Use by Functions. Anticipated water use in CY 2003, under the Basic simulation, is shown in ***Tables XI and XII***. Actual water use data for CY 2002 are included for information and comparison.

Under the simulated operations, estimated water use in CY 2004, which will be subject to reappraisal next year, also is shown in ***Table XI*** for the Steady-Release simulations and in ***Table XII*** for the Flow-to-Target and Steady-Release - Flow-to-Target simulations. Note that Gavins Point releases are lower for the Flow-to-Target simulation since no additional releases are made for T&E bird species.

VII. TENTATIVE PROJECTION OF OPERATIONS THROUGH MARCH 2010

(Not Completed Until Final Plan is Adopted)

TABLE X
ANTICIPATED DECEMBER 31, 2004 STORAGE IN SYSTEM

STEADY-RELEASE SIMULATIONS

Water Supply Condition	Total (12/31/04)	Above Minimum Pools 1/	Unfilled Carryover Storage 2/	Total Change CY 2004
		(Volumes in 1,000 Acre-Feet)		
Upper Decile	54,300	36,200	2,800	12,000
Upper Quartile	51,800	33,700	5,300	9,500
Median	46,300	28,200	10,800	5,400
Lower Quartile	39,900	21,800	17,200	0
Lower Decile	36,400	18,300	20,700	-3,500

FLOW-TO-TARGET AND
STEADY-RELEASE – FLOW TO TARGET SIMULATIONS

Water Supply Condition	Total (12/31/04)	Above Minimum Pools 1/	Unfilled Carryover Storage 2/	Total Change CY 2004
		(Volumes in 1,000 Acre-Feet)		
Median FTT	46,800	28,700	10,300	5,900
Median SR-FTT	46,300	28,200	10,800	5,400

1/ Net usable storage above 18.1 MAF System minimum pool level established for power, recreation, irrigation diversions, and other purposes.
2/ System base of flood control zone containing 57.1 MAF.

TABLE XI
MISSOURI RIVER MAINSTEM SYSTEM
WATER USE FOR CALENDAR YEARS 2002, 2003, AND 2004 ABOVE SIOUX CITY, IOWA
in Million Acre-Feet (MAF)

				Steady-Release Simulations for Calendar Year 2004				
		CY 2002 Actual	CY 2003 Basic Simulation	Upper Decile	Upper Quartile	Median	Lower Quartile	Lower Decile
Upstream Depletions	(1)							
Irrigation, Tributary Reservoir Evaporation & Other Uses		2.0	2.0					
Tributary Reservoir Storage Change		- 0.4	- 0.4					
Total Upstream Depletions		1.6	1.6	2.3	2.3	2.8	2.5	2.3
System Reservoir Evaporation	(2)	2.1	2.4	1.1	1.1	1.6	1.5	1.4
Sioux City Flows								
Navigation Season								
Unregulated Flood Inflows Between Gavins Point & Sioux City	(3)	0.0	0.0					
Navigation Service Requirement		15.0	13.3	15.4	14.3	9.9	11.3	11.1
Supplementary Releases								
T&E Species	(4)	-0.4	0.5	0.5	0.5	0.6	0.2	0.2
Flood Evacuation	(5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-navigation Season Flows		3.5	3.5	3.3	3.2	4.3	4.0	4.0
Flood Evacuation Releases	(6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Storage Change		-6.1	-1.8	11.9	9.2	5.4	0.0	-3.5
Total		15.7	19.5	34.5	30.6	24.6	19.5	15.5
Project Releases								
Fort Peck		4.8	5.3	4.8	4.9	5.3	5.3	5.4
Garrison		11.7	13.2	14.2	14.0	12.8	13.2	12.6
Oahe		14.9	14.2	13.1	13.1	12.1	13.6	13.7
Big Bend		13.9	13.5	13.0	13.1	12.0	13.5	13.5
Fort Randall		15.2	15.0	14.2	14.0	12.8	13.6	13.7
Gavins Point		16.0	15.7	16.3	15.8	14.1	14.7	14.7

(1) Tributary uses, above the 1949 level of development including agricultural depletions and tributary storage effects.
(2) Net evaporation is shown for 2003.
(3) Incremental inflows to reach which exceed those usable in support of navigation at the target level, even if Gavins Point Dam releases were held to as low as 6,000 cfs.
(4) Increased releases required to maintain navigation release flexibility during the T&E species nesting season. During 2002, releases fell below minimum service support flows because of T&E nesting resulting in a negative value instead of zero. In 2003 releases fell below minimum service support flows because of a Federal Court Injunction from mid-August through 1 Sept. This Court Order reduced T&E Species associated requirements by 200,000 acre-feet during the total nesting period from 1 May through 15 August.
(5) Includes flood control releases for flood control storage evacuation and releases used to extend the navigation season beyond the normal December 1 closing date at the mouth of the Missouri River.
(6) Releases for flood control storage evacuation in excess of a 15,000 cfs Fort Randall Dam release.

TABLE XII
MISSOURI RIVER MAINSTEM SYSTEM
WATER USE FOR CALENDAR YEARS 2002, 2003, AND 2004 ABOVE SIOUX CITY, IOWA
in Million Acre-Feet (MAF)

		CY 2002 Actual	CY 2003 Basic Simulation	Simulations for Calendar Year 2004 **Flow-to-Target** Median	**SR-FTT** Median
Upstream Depletions	(1)				
Irrigation, Tributary Reservoir Evaporation & Other Uses		2.0	2.0		
Tributary Reservoir Storage Change		- 04	- 0.4		
Total Upstream Depletions		1.6	1.6	2.7	2.7
System Reservoir Evaporation	(2)	2.1	2.4	1.5	1.5
Sioux City Flows					
Navigation Season					
Unregulated Flood Inflows Between Gavins Point & Sioux City	(3)	0.0	0.0		
Navigation Service Requirement		15.0	13.3	10.5	11.1
Supplementary Releases					
T&E Species	(4)	-0.4	0.5	0.0	0.0
Flood Evacuation	(5)	0.0	0.0	0.0	0.0
Non-navigation Season					
Flows		3.5	3.5	4.1	4.1
Flood Evacuation Releases	(6)	0.0	0.0	0.0	0.0
System Storage Change		-6.1	-1.8	5.8	5.2
Total		15.7	19.5	24.6	24.6
Project Releases					
Fort Peck		4.8	5.3	5.1	5.3
Garrison		11.7	13.2	12.6	12.9
Oahe		14.9	14.2	11.5	12.1
Big Bend		13.9	13.5	11.4	12.0
Fort Randall		15.2	15.0	12.2	12.7
Gavins Point		16.0	15.7	13.5	14.1

(1) Tributary uses, above the 1949 level of development including agricultural depletions and tributary storage effects.
(2) Net evaporation is shown for 2004.
(3) Incremental inflows to reach which exceed those usable in support of navigation at the target level, even if Gavins Point Dam releases were held to as low as 6,000 cfs.
(4) Increased releases required to maintain navigation release flexibility during the T&E species nesting season. During 2002, releases fell below minimum service support flows because of T&E nesting resulting in a negative value instead of zero. In 2003 releases fell below minimum service support flows because of a Federal Court Injunction from mid-August through 1 Sept. This Court Order reduced T&E Species associated requirements by 200,000 acre-feet during the total nesting period from 1 May through 15 August.
(5) Includes flood control releases for flood control storage evacuation and releases used to extend the navigation season beyond the normal December 1 closing date at the mouth of the Missouri River.
(6) Releases for flood control storage evacuation in excess of a 15,000 cfs Fort Randall Dam release

MISSOURI RIVER BASIN

PLATE 1

Summary of Engineering Data -- Missouri River Mainstem System

Item No.	Subject	Fort Peck Lake	Garrison Dam - Lake Sakakawea	Oahe Dam - Lake Oahe
1	Location of Dam	Near Glasgow, Montana	Near Garrison, ND	Near Pierre, SD
2	River Mile - 1960 Mileage	Mile 1771.5	Mile 1389.9	Mile 1072.3
3	Total & incremental drainage areas in square miles	57,500	181,400 (2) 123,900	243,490 (1) 62,090
4	Approximate length of full reservoir (in valley miles)	134, ending near Zortman, MT	178, ending near Trenton, ND	231, ending near Bismarck, ND
5	Shoreline in miles (3)	1520 (elevation 2234)	1340 (elevation 1837.5)	2250 (elevation 1607.5)
6	Average total & incremental inflow in cfs	10,200	25,600 15,400	28,900 3,300
7	Max. discharge of record near damsite in cfs	137,000 (June 1953)	348,000 (April 1952)	440,000 (April 1952)
8	Construction started - calendar yr.	1933	1946	1948
9	In operation (4) calendar yr.	1940	1955	1962
	Dam and Embankment			
10	Top of dam, elevation in feet msl	2280.5	1875	1660
11	Length of dam in feet	21,026 (excluding spillway)	11,300 (including spillway)	9,300 (excluding spillway)
12	Damming height in feet (5)	220	180	200
13	Maximum height in feet (5)	250.5	210	245
14	Max. base width, total & w/o berms in feet	3500, 2700	3400, 2050	3500, 1500
15	Abutment formations (under dam & embankment)	Bearpaw shale and glacial fill	Fort Union clay shale	Pierre shale
16	Type of fill	Hydraulic & rolled earth fill	Rolled earth filled	Rolled earth fill & shale berms
17	Fill quantity, cubic yards	125,628,000	66,500,000	55,000,000 & 37,000,000
18	Volume of concrete, cubic yards	1,200,000	1,500,000	1,045,000
19	Date of closure	24 June 1937	15 April 1953	3 August 1958
	Spillway Data			
20	Location	Right bank - remote	Left bank - adjacent	Right bank - remote
21	Crest elevation in feet msl	2225	1825	1596.5
22	Width (including piers) in feet	820 gated	1336 gated	456 gated
23	No., size and type of gates	16 - 40' x 25' vertical lift gates	28 - 40' x 29' Tainter	8 - 50' x 23.5' Tainter
24	Design discharge capacity, cfs	275,000 at elev 2253.3	827,000 at elev 1858.5	304,000 at elev 1644.4
25	Discharge capacity at maximum operating pool in cfs	230,000	660,000	80,000
	Reservoir Data (6)			
26	Max. operating pool elev. & area	2250 msl 246,000 acres	1854 msl 380,000 acres	1620 msl 374,000 acres
27	Max. normal op. pool elev. & area	2246 msl 240,000 acres	1850 msl 364,000 acres	1617 msl 360,000 acres
28	Base flood control elev & area	2234 msl 212,000 acres	1837.5 msl 307,000 acres	1607.5 msl 312,000 acres
29	Min. operating pool elev. & area	2160 msl 90,000 acres	1775 msl 128,000 acres	1540 msl 117,000 acres
	Storage allocation & capacity			
30	Exclusive flood control	2250-2246 975,000 a.f.	1854-1850 1,489,000 a.f.	1620-1617 1,102,000 a.f.
31	Flood control & multiple use	2246-2234 2,717,000 a.f.	1850-1837.5 4,222,000 a.f.	1617-1607.5 3,201,000 a.f.
32	Carryover multiple use	2234-2160 10,785,000 a.f.	1837.5-1775 13,130,000 a.f.	1607.5-1540 13,461,000 a.f.
33	Permanent	2160-2030 4,211,000 a.f.	1775-1673 4,980,000 a.f.	1540-1415 5,373,000 a.f.
34	Gross	2250-2030 18,688,000 a.f.	1854-1673 23,821,000 a.f.	1620-1415 23,137,000 a.f.
35	Reservoir filling initiated	November 1937	December 1953	August 1958
36	Initially reached min. operating pool	27 May 1942	7 August 1955	3 April 1962
37	Estimated annual sediment inflow	18,100 a.f. 1030 yrs.	25,900 a.f. 920 yrs.	19,800 a.f. 1170 yrs.
	Outlet Works Data			
38	Location	Right bank	Right Bank	Right Bank
39	Number and size of conduits	2 - 24' 8" diameter (nos. 3 & 4)	1 - 26' dia. and 2 - 22' dia.	6 - 19.75' dia. upstream, 18.25' dia. downstream
40	Length of conduits in feet (8)	No. 3 - 6,615, No. 4 - 7,240	1529	3496 to 3659
41	No., size, and type of service gates	1 - 28' dia. cylindrical gate 6 ports, 7.6' x 8.5' high (net opening) in each control shaft	1 - 18' x 24.5' Tainter gate per conduit for fine regulation	1 - 13' x 22' per conduit, vertical lift, 4 cable suspension and 2 hydraulic suspension (fine regulation)
42	Entrance invert elevation (msl)	2095	1672	1425
43	Avg. discharge capacity per conduit & total	Elev. 2250 22,500 cfs - 45,000 cfs	Elev. 1854 30,400 cfs - 98,000 cfs	Elev. 1620 18,500 cfs - 111,000 cfs
44	Present tailwater elevation (ft msl)	2032-2036 5,000 - 35,000 cfs	1670-1680 15,000- 60,000 cfs	1423-1428 20,000-55,000 cfs
	Power Facilities and Data			
45	Avg. gross head available in feet (14)	194	161	174
46	Number and size of conduits	No. 1-24'8" dia., No. 2-22'4" dia.	5 - 29' dia., 25' penstocks	7 - 24' dia., imbedded penstocks
47	Length of conduits in feet (8)	No. 1 - 5,653, No. 2 - 6,355	1829	From 3,280 to 4,005
48	Surge tanks	PH#1: 3-40' dia., PH#2: 2-65' dia.	65' dia. - 2 per penstock	70' dia., 2 per penstock
49	No., type and speed of turbines	5 Francis, PH#1-2: 128.5 rpm, 1-164 rpm , PH#2-2: 128.6 rpm	5 Francis, 90 rpm	7 Francis, 100 rpm
50	Discharge cap. at rated head in cfs	PH#1, units 1&3 170', 2-140' 8,800 cfs, PH#2-4&5 170'-7,200 cfs	150' 41,000 cfs	185' 54,000 cfs
51	Generator nameplate rating in kW	1&3: 43,500; 2: 18,250; 4&5: 40,000	3 - 109,250, 2 - 95,000	112,290
52	Plant capacity in kW	185,250	517,750	786,030
53	Dependable capacity in kW (9)	181,000	388,000	534,000
54	Avg. annual energy, million kWh (12)	1,142	2,429	2,867
55	Initial generation, first and last unit	July 1943 - June 1961	January 1956 - October 1960	April 1962 - June 1963
56	Estimated cost September 1999 completed project (13)	$158,428,000	$305,274,000	$346,521,000

Summary of Engineering Data -- Missouri River Mainstem System

Big Bend Dam - Lake Sharpe	Fort Randall Dam - Lake Francis Case	Gavins Point Dam - Lewis & Clark Lake	Total	Item No.	Remarks
21 miles upstream Chamberlain, SD	Near Lake Andes, SD	Near Yankton, SD		1	(1) Includes 4,280 square miles of non-contributing areas.
Mile 987.4	Mile 880.0	Mile 811.1		2	
249,330 (1) 5,840	263,480 (1) 14,150	279,480 (1) 16,000		3	
80, ending near Pierre, SD	107, ending at Big Bend Dam	25, ending near Niobrara, NE	755 miles	4	(2) Includes 1,350 square miles of non-contributing areas.
200 (elevation 1420)	540 (elevation 1350)	90 (elevation 1204.5)	5,940 miles	5	(3) With pool at base of flood control.
28,900	30,000 1,100	32,000 2,000		6	
440,000 (April 1952)	447,000 (April 1952)	480,000 (April 1952)		7	(4) Storage first available for regulation of flows.
1959	1946	1952		8	(5) Damming height is height from low water to maximum operating pool. Maximum height is from average streambed to top of dam.
1964	1953	1955		9	
1440	1395	1234		10	
10,570 (including spillway)	10,700 (including spillway)	8,700 (including spillway)	71,596	11	(6) Based on latest available storage data.
78	140	45	863 feet	12	
95	165	74		13	(7) River regulation is attained by flows over low-crested spillway and through turbines.
1200, 700	4300, 1250	850, 450		14	
Pierre shale & Niobrara chalk	Niobrara chalk	Niobrara chalk & Carlile shale		15	(8) Length from upstream face of outlet or to spiral case.
Rolled earth, shale, chalk fill	Rolled earth fill & chalk berms	Rolled earth & chalk fill		16	
17,000,000	28,000,000 & 22,000,000	7,000,000	358,128,000 cu. yds	17	(9) Based on 8th year (1961) of drought drawdown (From study 8-83-1985).
540,000	961,000	308,000	5,554,000 cu. yds.	18	
24 July 1963	20 July 1952	31 July 1955		19	
Left bank - adjacent	Left bank - adjacent	Right bank - adjacent		20	(10) Affected by level of Lake Francis case. Applicable to pool at elevation 1350.
1385	1346	1180		21	
376 gated	1000 gated	664 gated		22	(11) Spillway crest.
8 - 40' x 38' Tainter	21 - 40' x 29' Tainter	14 - 40' x 30' Tainter		23	(12) 1967-2001 Average
390,000 at elev 1433.6	620,000 at elev 1379.3	584,000 at elev 1221.4		24	(13) Source: Annual Report on Civil Works Activities of the Corps of Engineers. Extract Report Fiscal Year 1999.
270,000	508,000	345,000		25	
1423 msl 61,000 acres	1375 msl 102,000 acres	1210 msl 31,000 acres	1,194,000 acres	26	(14) Based on Study 8-83-1985
1422 msl 60,000 acres	1365 msl 95,000 acres	1208 msl 28,000 acres	1,147,000 acres	27	
1420 msl 57,000 acres	1350 msl 77,000 acres	1204.5 msl 24,000 acres	989,000 acres	28	
1415 msl 51,000 acres	1320 msl 38,000 acres	1204.5 msl 24,000 acres	450,000 acres	29	
1423-1422 60,000 a.f.	1375-1365 985,000 a.f.	1210-1208 59,000 a.f.	4,670,000 a.f.	30	
1422-1420 117,000 a.f.	1365-1350 1,309,000 a.f.	1208-1204.5 90,000 a.f.	11,656,000 a.f.	31	
	1350-1320 1,607,000 a.f.		38,983,000 a.f.	32	
1420-1345 1,682,000 a.f.	1320-1240 1,517,000 a.f.	1204.5-1160 321,000 a.f.	18,084,000 a.f.	33	
1423-1345 1,859,000 a.f.	1375-1240 5,418,000 a.f.	1210-1160 470,000 a.f.	73,393,000 a.f.	34	
November 1963	January 1953	August 1955		35	
25 March 1964	24 November 1953	22 December 1955		36	
4,300 a.f. 430 yrs.	18,300 a.f. 250 yrs.	2,600 a.f. 180 yrs.	92,500 a.f.	37	
	Left Bank			38	
None (7)	4 - 22' diameter	None (7)		39	
	1013			40	
	2 - 11' x 23' per conduit, vertical lift, cable suspension			41	
1385 (11)	1229	1180 (11)		42	
	Elev 1375			43	
	32,000 cfs - 128,000 cfs				
1351-1355(10) 25,000-100,000 cfs	1228-1239 5,000-60,000 cfs	1155-1163 15,000-60,000 cfs		44	
70	117	48	764 feet	45	
None: direct intake	8 - 28' dia., 22' penstocks	None: direct intake		46	
	1,074		55,083	47	
None	59' dia, 2 per alternate penstock	None		48	
8 Fixed blade, 81.8 rpm	8 Francis, 85.7 rpm	3 Kaplan, 75 rpm	36 units	49	
67' 103,000 cfs	112' 44,500 cfs	48' 36,000 cfs		50	
3 - 67,276, 5 - 58,500	40,000	44,100		51	
494,320	320,000	132,300	2,435,650 kw	52	
497,000	293,000	74,000	1,967,000 kw	53	Corps of Engineers, U.S. Army
1,041	1,843	754	10,077 million kWh	54	Compiled by
October 1964 - July 1966	March 1954 - January 1956	September 1956 - January 1957	July 1943 - July 1966	55	Northwestern Division
				56	Missouri River Region
$107,498,000	$199,066,000	$49,617,000	$1,166,404,000		May 2001

System Storage

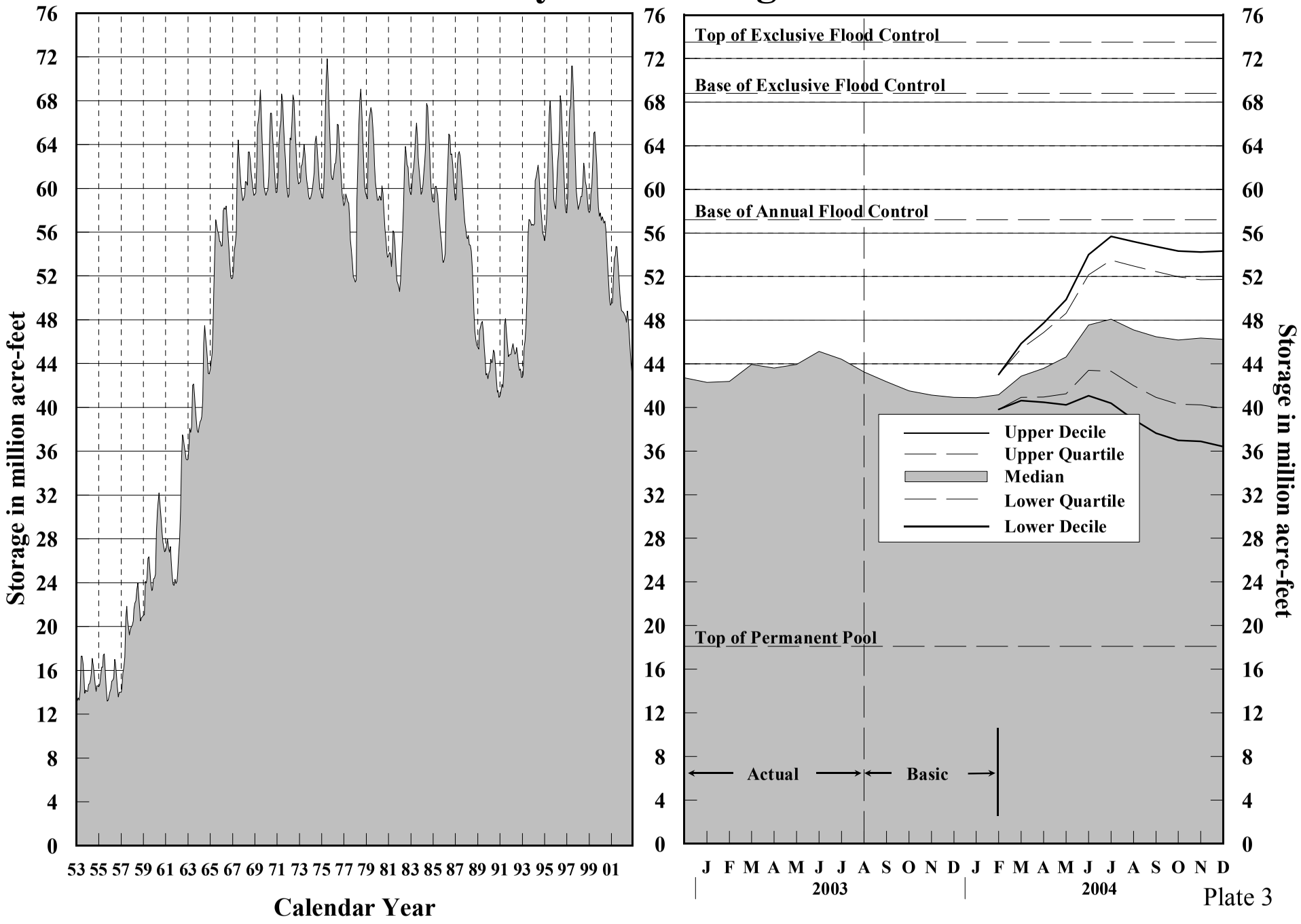


Plate 3

Gavins Point Releases

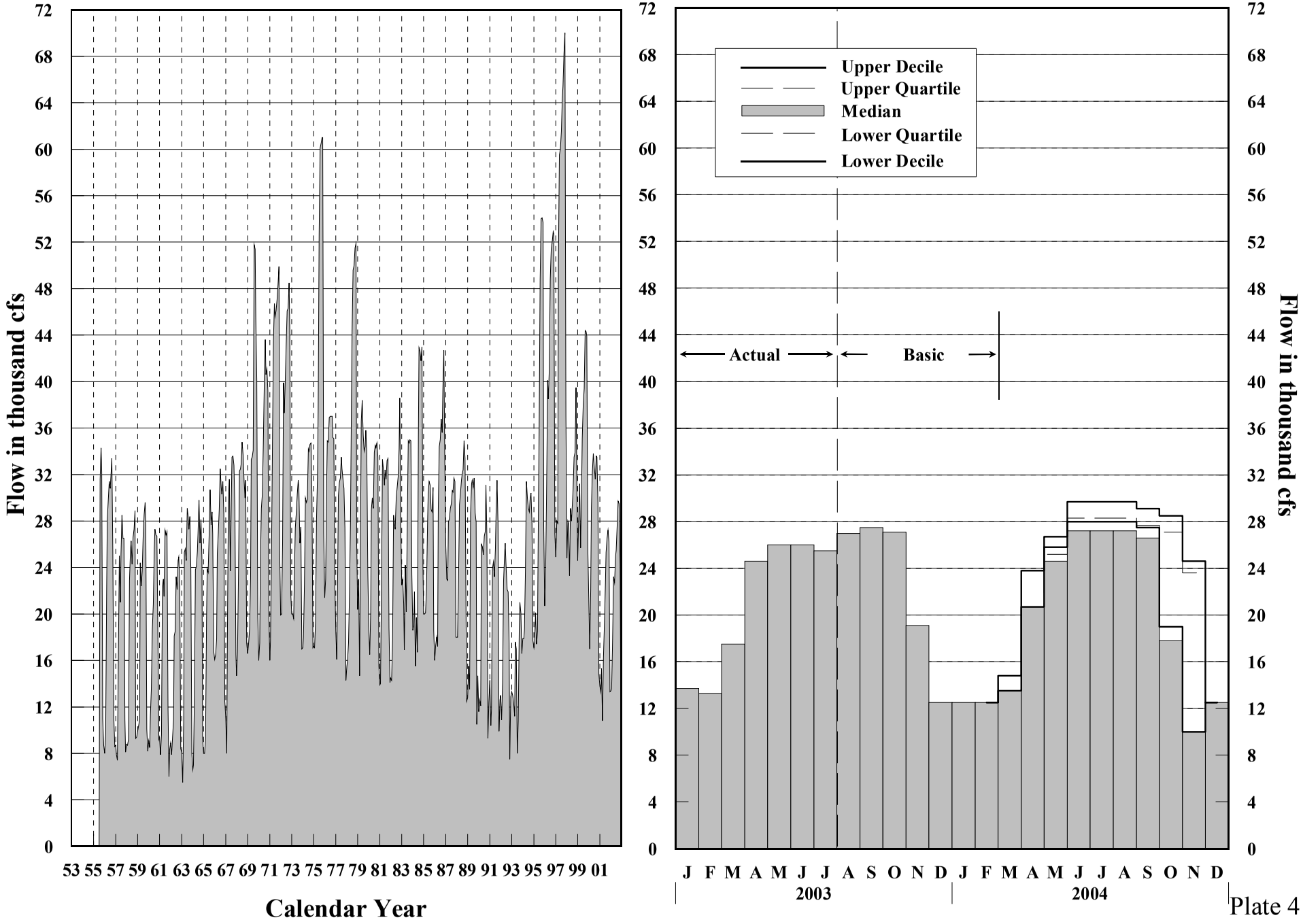
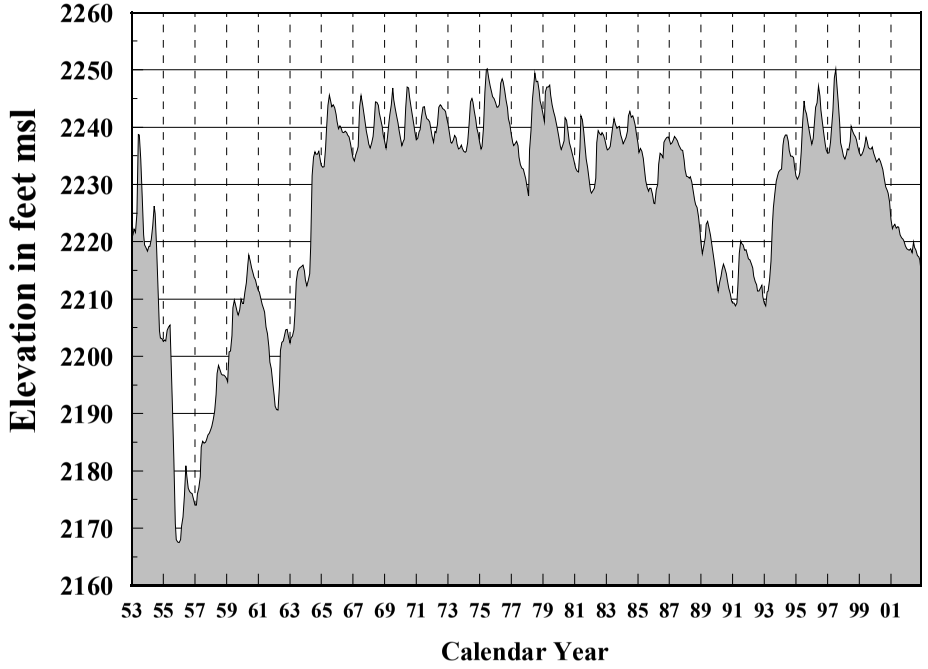
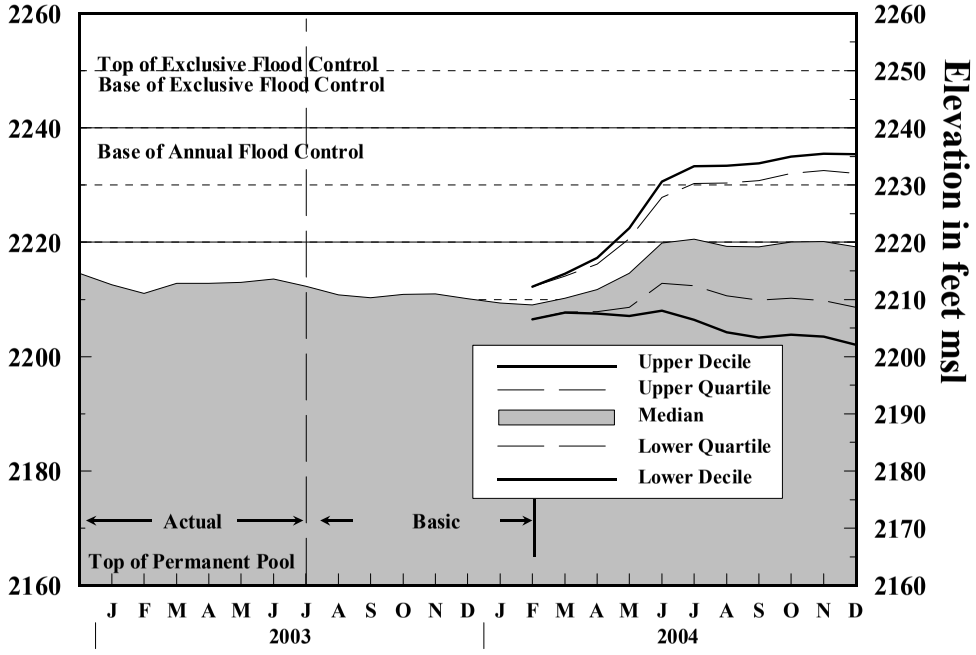
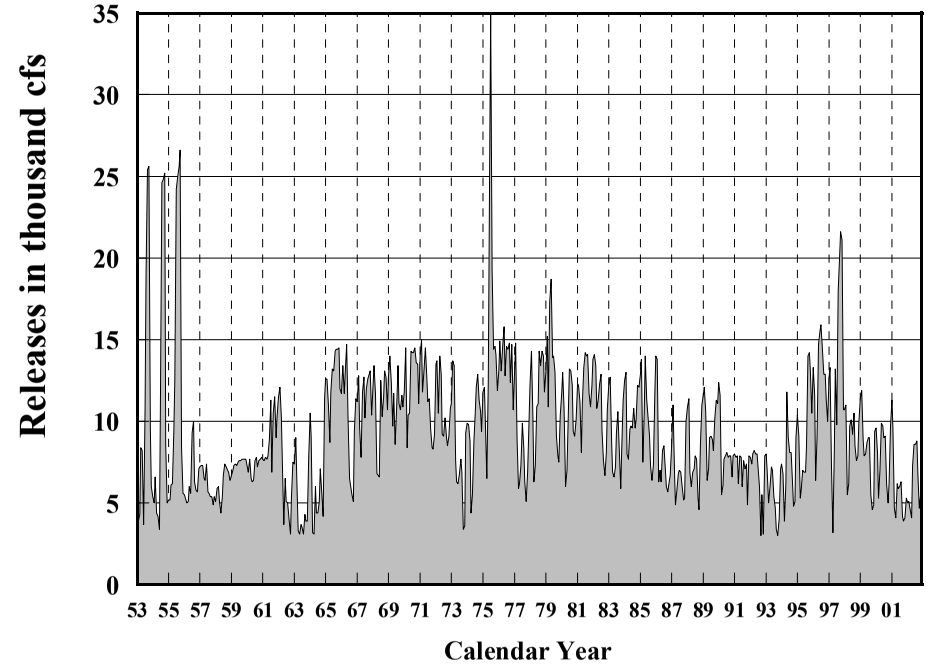


Plate 4

Fort Peck
Elevations and Releases







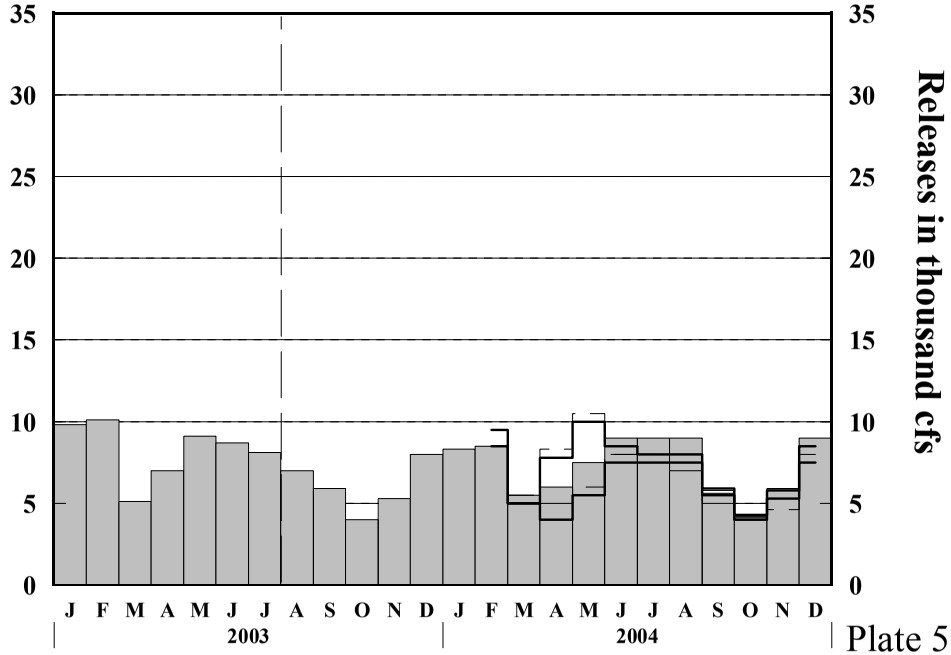
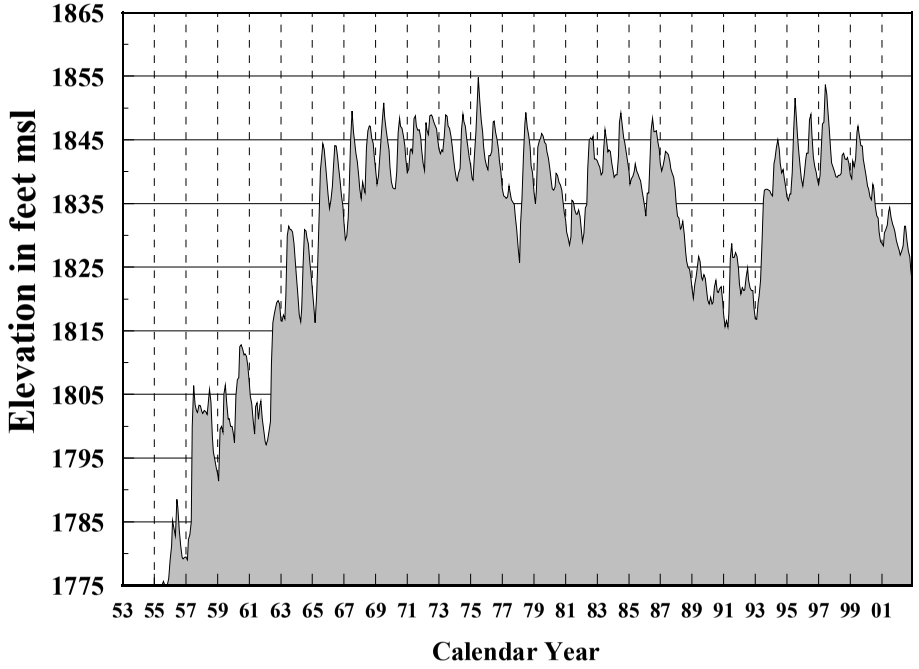
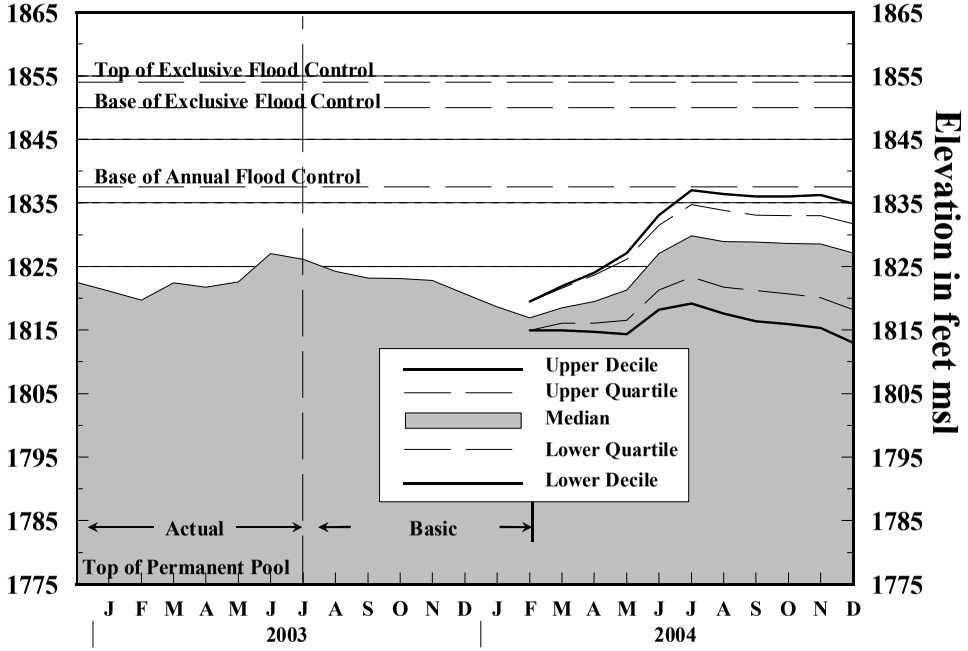
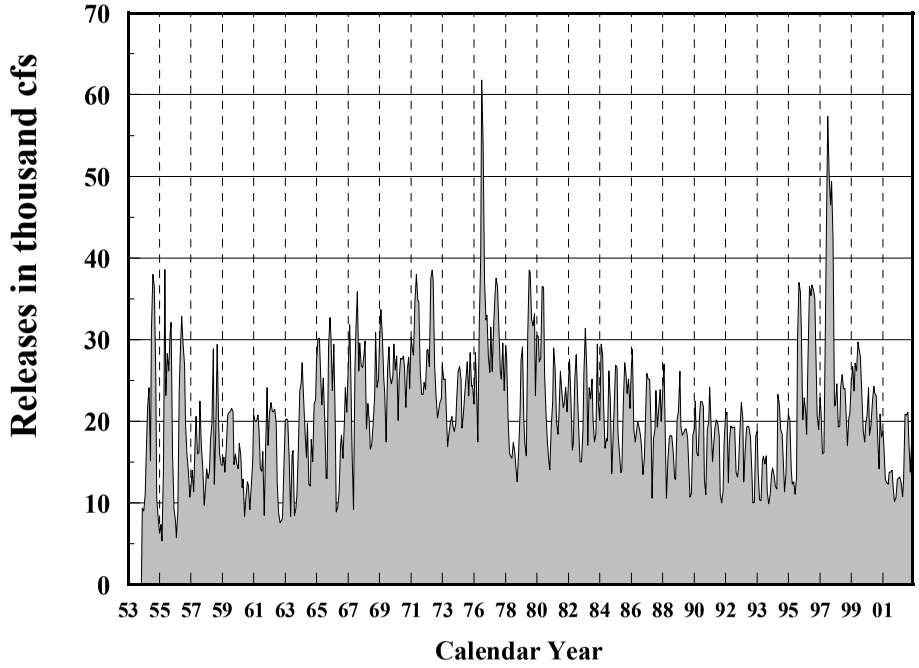


Plate 5

Garrison
Elevations and Releases







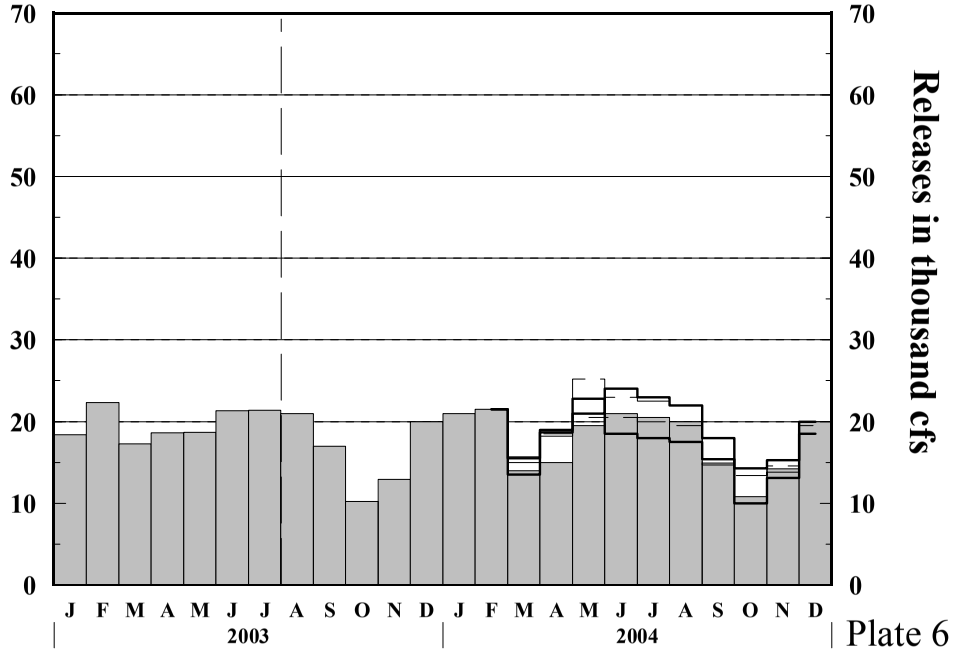
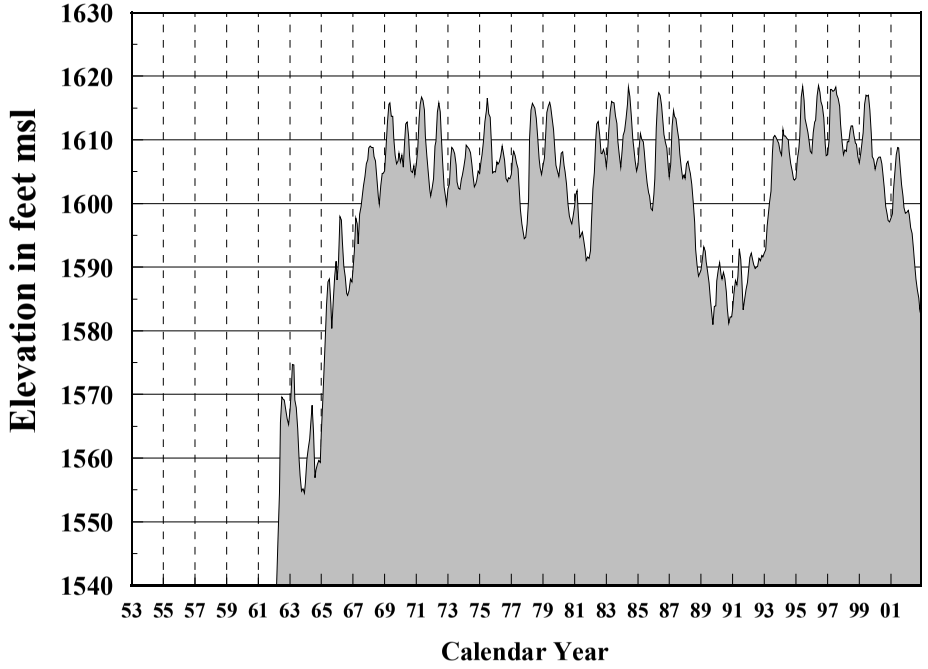
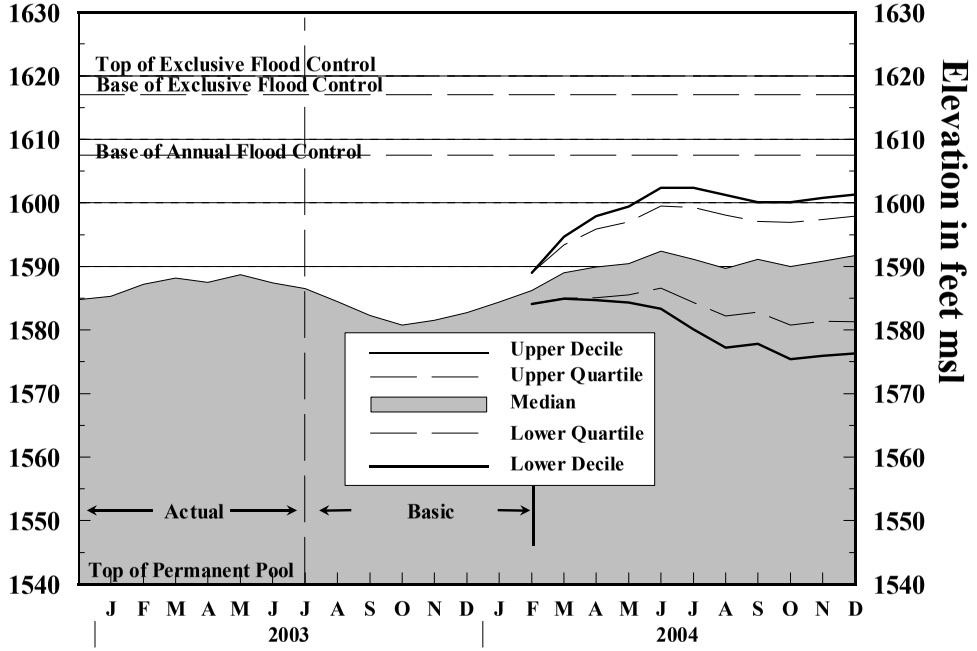
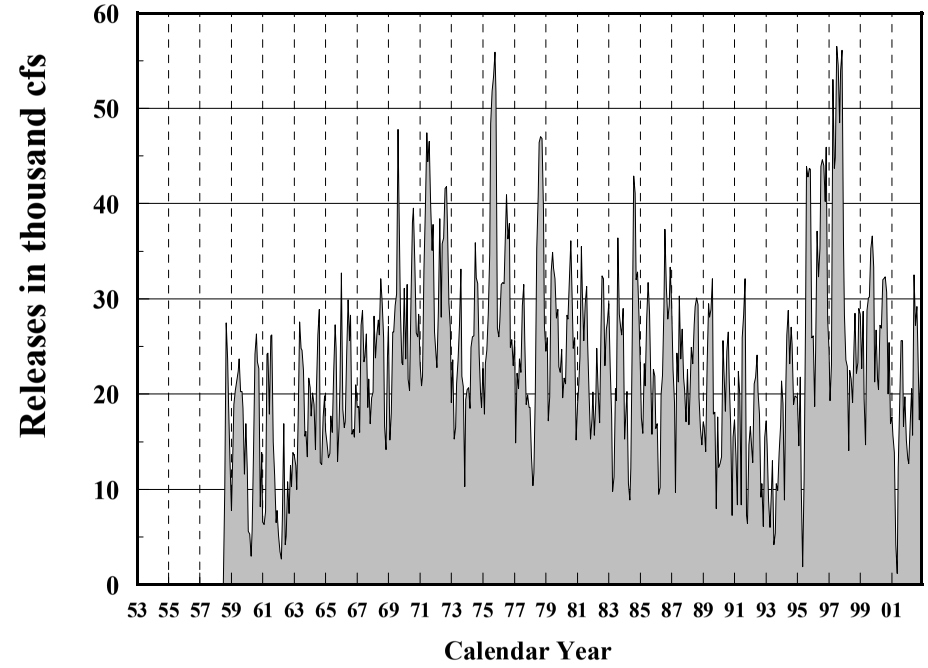


Plate 6

Oahe
Elevations and Releases







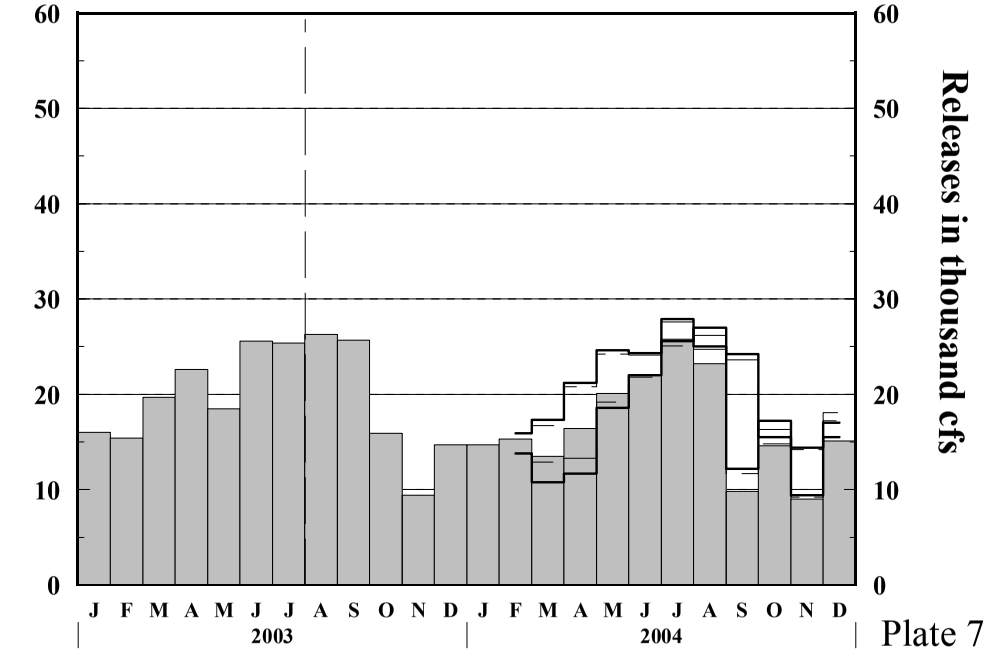
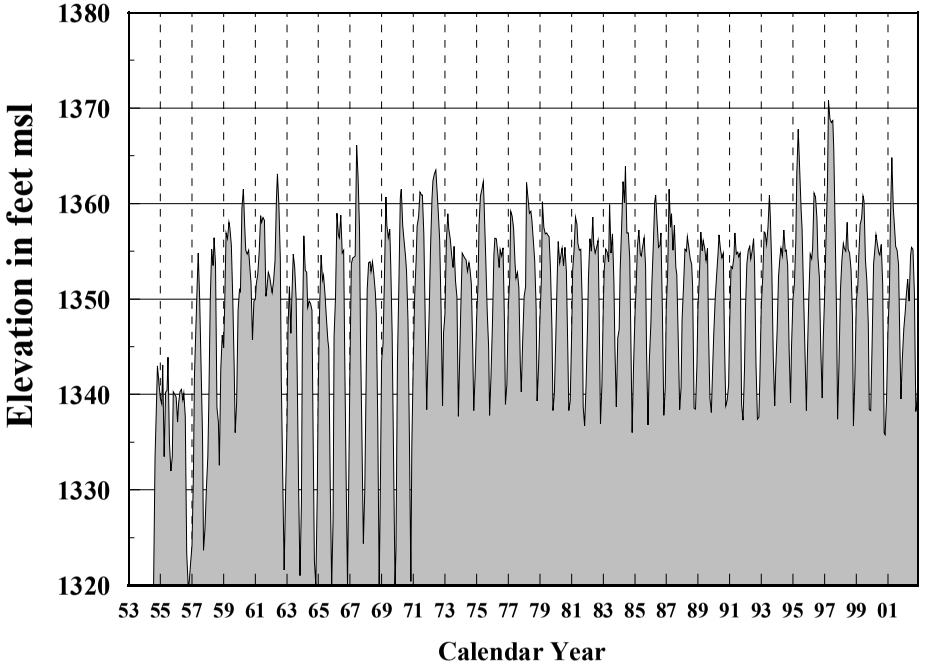
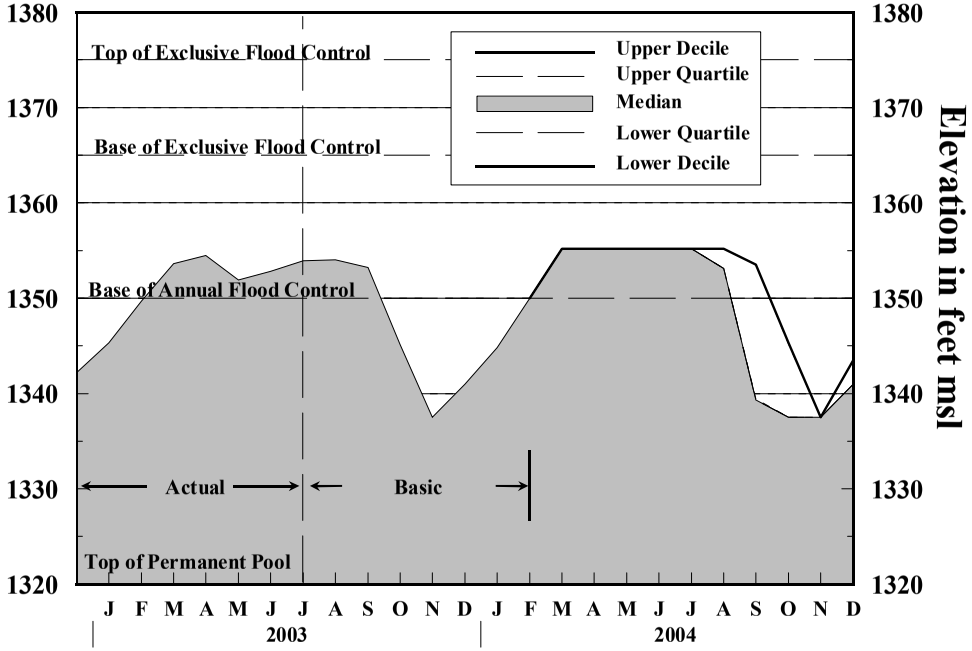
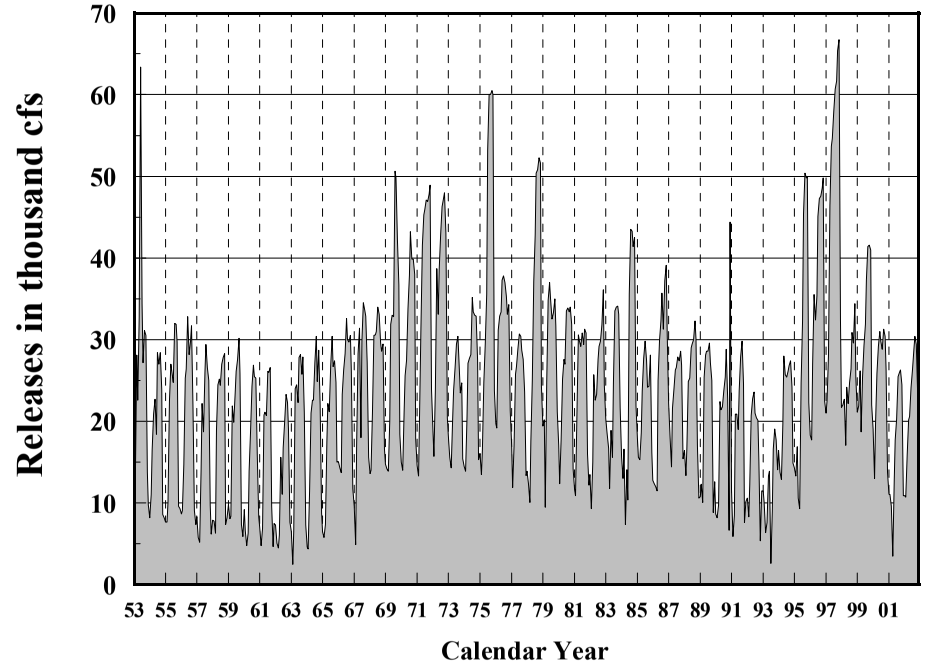


Plate 7

Fort Randall
Elevations and Releases







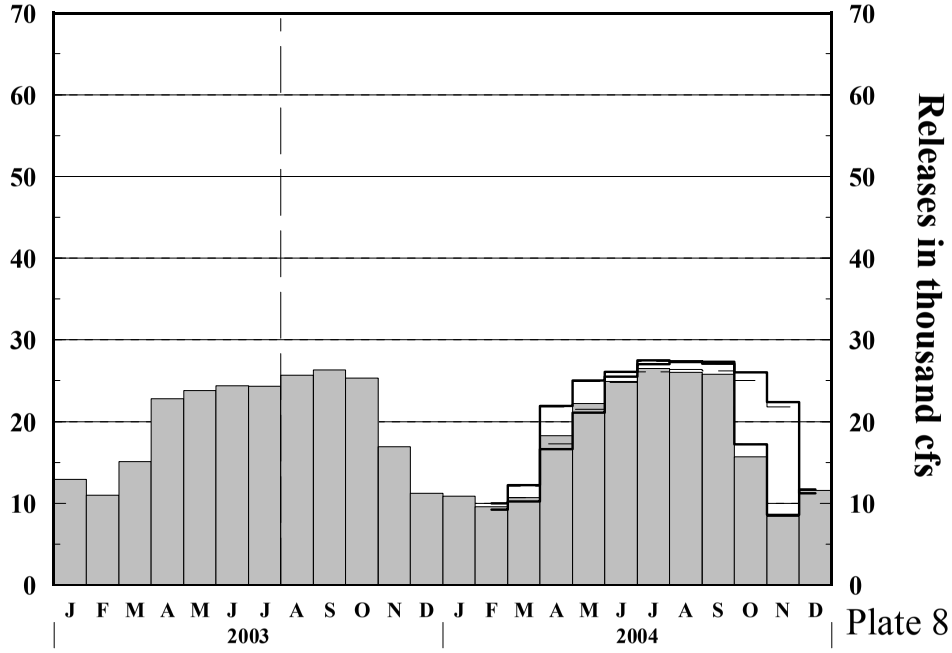
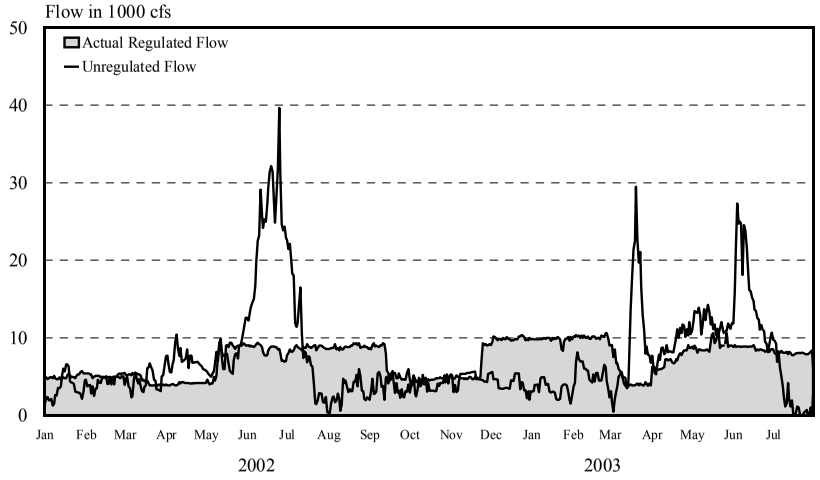


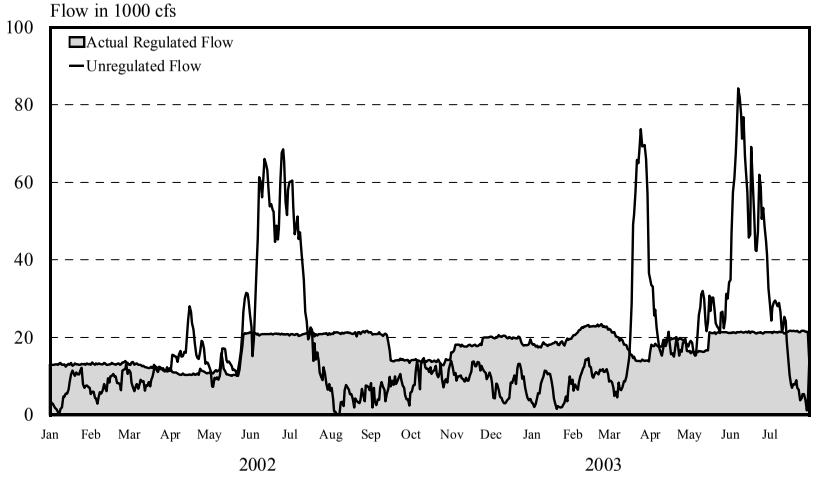
Plate 8

Reservoir Release and Unregulated Flow

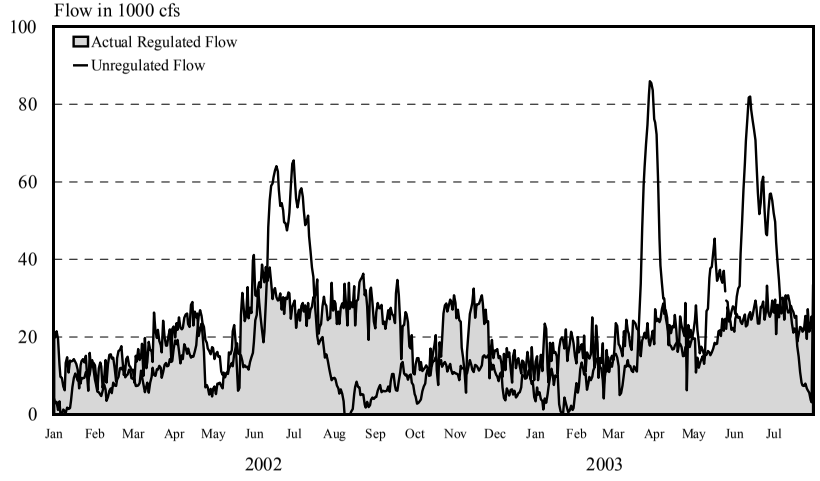
Fort Peck



Garrison



Oahe



Gavins Point

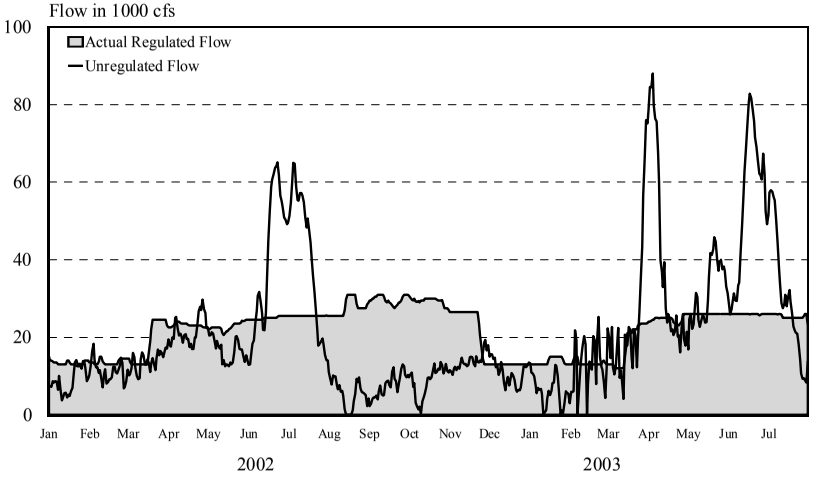


Plate 9

System Gross Capability and Average Monthly Generation

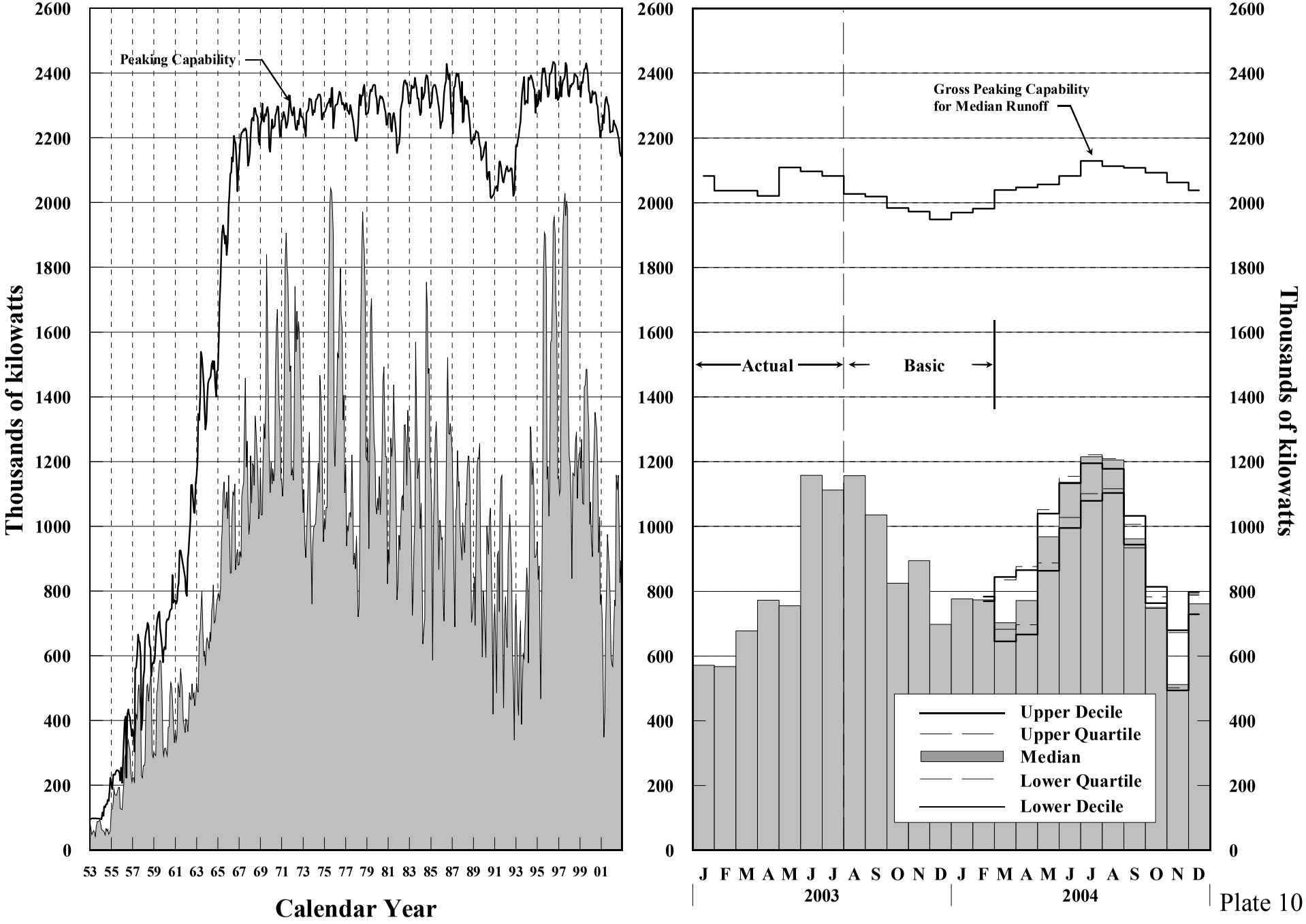


Plate 10

Tentative Five Year Extensions of 2002-2003 AOP

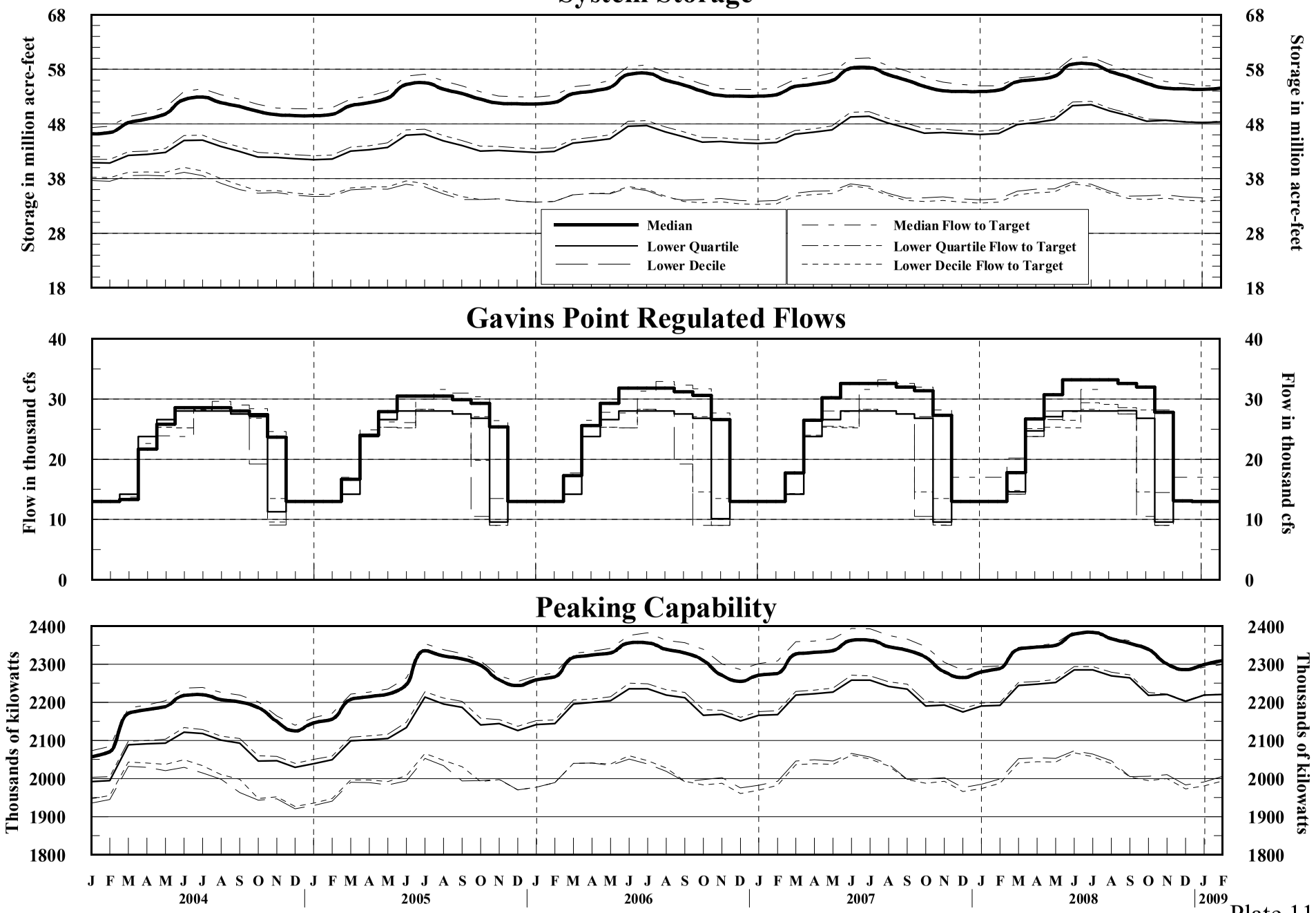


Plate 11

Tentative Five Year Extensions of 2002-2003 AOP

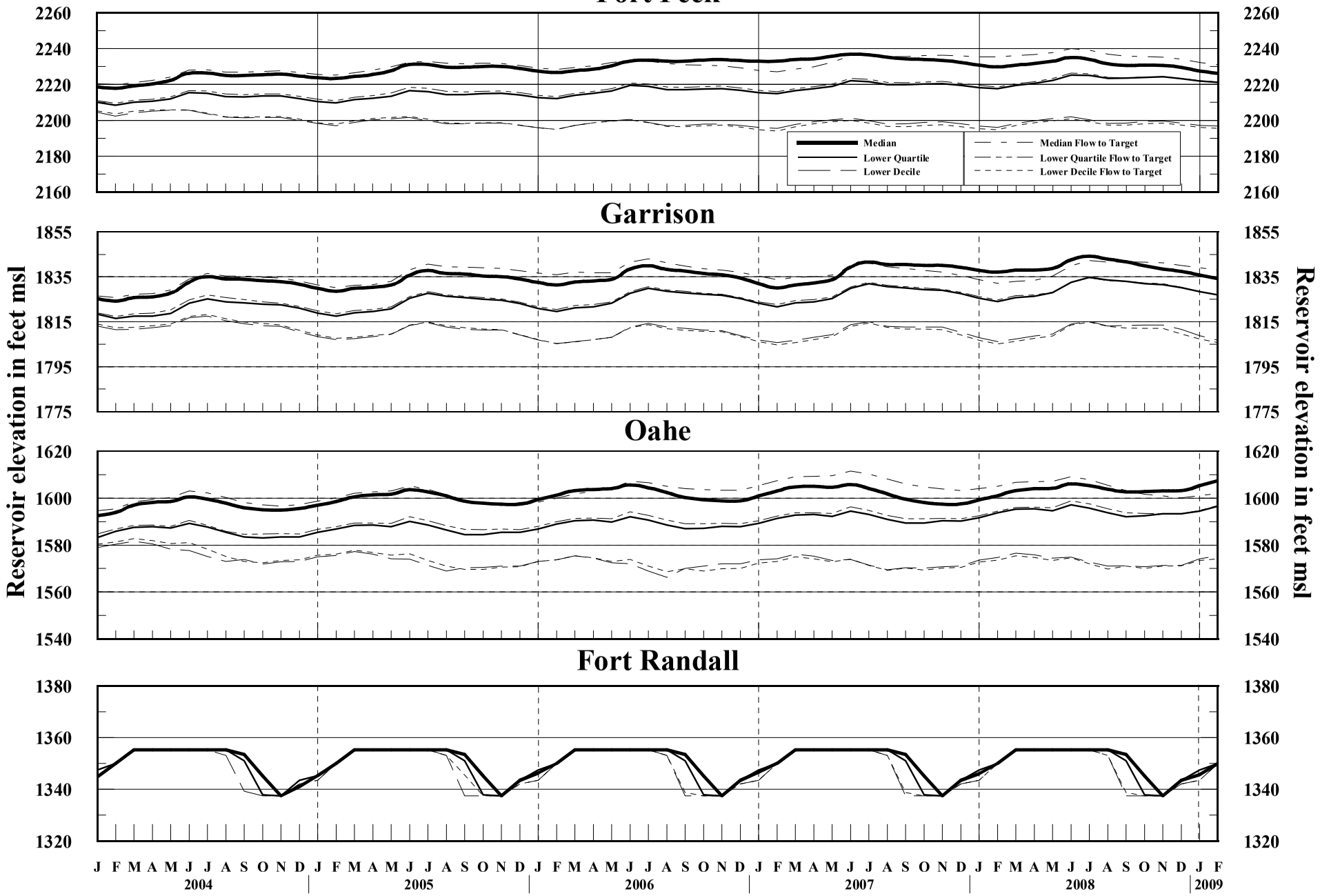


Plate 12

VALUES IN 1000 AF EXCEPT AS INDICATED

31JUL03		2003						2004	
INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--									
NAT INFLOW 2180	200	260	350	185	86	99	320	315	365
DEPLETION -432	-41	-103	-63	-13	-6	-7	-67	-80	-52
EVAPORATION 332	67	85	74	34	16	18	39		
MOD INFLOW 2280	174	278	339	164	77	88	348	395	417
RELEASE 2832	430	354	244	118	83	111	492	510	489
STOR CHANGE -552	-257	-76	95	46	-7	-23	-144	-115	-72
STORAGE 10950	10693	10618	10713	10759	10752	10729	10585	10470	10398
ELEV FTMSL 2212.3	2210.8	2210.3	2210.9	2211.2	2211.1	2211.0	2210.1	2209.4	2209.0
DISCH KCFS 8.1	7.0	5.9	4.0	4.0	6.0	7.0	8.0	8.3	8.5
POWER									
AVE POWER MW	87	74	49	49	75	87	99	102	105
PEAK POW MW	140	139	140	140	140	140	139	138	138
ENERGY GWH 424.7	64.9	53.2	36.7	17.8	12.6	16.7	73.8	76.2	72.8
--GARRISON--									
NAT INFLOW 2630	480	380	500	200	93	107	250	260	360
DEPLETION -42	48	-87	61	-46	-21	-25	-3	9	22
CHAN STOR -5	11	11	21		-21	-11	-11	-3	-2
EVAPORATION 395	81	101	88	40	19	21	45		
REG INFLOW 5105	793	731	616	324	158	211	689	758	825
RELEASE 7456	1291	1012	626	303	180	286	1230	1291	1237
STOR CHANGE -2351	-499	-280	-10	21	-22	-75	-541	-533	-412
STORAGE 14857	14358	14078	14068	14089	14067	13992	13451	12918	12506
ELEV FTMSL 1826.1	1824.2	1823.2	1823.1	1823.2	1823.1	1822.8	1820.7	1818.6	1816.9
DISCH KCFS 21.4	21.0	17.0	10.2	10.2	13.0	18.0	20.0	21.0	21.5
POWER									
AVE POWER MW	242	194	116	116	148	204	225	233	235
PEAK POW MW	339	336	335	336	335	335	328	322	317
ENERGY GWH 1016.4	179.8	139.8	86.7	41.9	24.9	39.3	167.4	173.1	163.5
--OAHE--									
NAT INFLOW 375	50	100	65	30	14	16		10	90
DEPLETION 171	87	22	-6	3	1	1	14	19	30
CHAN STOR -1	2	20	35		-14	-26	-10	-5	-2
EVAPORATION 340	71	88	75	33	16	18	39		
REG INFLOW 7318	1185	1022	657	297	163	257	1166	1277	1294
RELEASE 7367	1615	1527	975	262	172	127	906	903	879
STOR CHANGE -49	-430	-506	-318	35	-8	129	260	374	415
STORAGE 13137	12707	12201	11883	11918	11910	12039	12299	12673	13088
ELEV FTMSL 1586.4	1584.5	1582.3	1580.8	1581.0	1580.9	1581.5	1582.7	1584.4	1586.2
DISCH KCFS 25.4	26.3	25.7	15.9	8.8	12.4	8.0	14.7	14.7	15.3
POWER									
AVE POWER MW	300	289	177	99	138	90	166	166	175
PEAK POW MW	593	581	573	574	574	577	583	592	601
ENERGY GWH 1008.2	223.1	208.4	132.0	35.5	23.2	17.3	123.2	123.9	121.8
--BIG BEND--									
EVAPORATION 97	20	25	22	10	5	5	11		
REG INFLOW 7270	1596	1503	953	253	167	122	895	903	879
RELEASE 7270	1596	1503	953	253	167	122	895	903	879
STORAGE 1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL 1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS 23.8	25.9	25.3	15.5	8.5	12.0	7.7	14.5	14.7	15.3
POWER									
AVE POWER MW	123	120	76	43	61	39	73	72	73
PEAK POW MW	515	518	538	538	538	538	538	538	529
ENERGY GWH 426.3	91.2	86.1	56.7	15.5	10.2	7.5	54.3	53.8	51.0
--FORT RANDALL--									
NAT INFLOW 180	40	40	10	5	2	3	10	20	50
DEPLETION 34	15	7	1	1	0	1	3	3	3
EVAPORATION 108	25	31	25	9	4	4	10		
REG INFLOW 7307	1596	1505	937	246	165	120	892	920	926
RELEASE 7617	1583	1568	1555	695	186	121	689	670	552
STOR CHANGE -310	13	-63	-617	-449	-21	0	203	250	374
STORAGE 3434	3447	3384	2767	2318	2297	2297	2500	2750	3124
ELEV FTMSL 1353.8	1354.0	1353.2	1345.1	1337.9	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS 24.3	25.7	26.3	25.3	23.4	13.4	7.6	11.2	10.9	9.6
POWER									
AVE POWER MW	215	219	202	175	98	56	83	84	77
PEAK POW MW	351	348	318	285	284	283	300	317	338
ENERGY GWH 735.3	159.6	157.6	150.7	63.0	16.4	10.7	61.8	62.2	53.3
--GAVINS POINT--									
NAT INFLOW 765	100	100	120	60	28	32	100	100	125
DEPLETION 28	10	-5	2	5	2	3	10	1	
CHAN STOR 27	-3	-1	2	4	18	11	-7	1	2
EVAPORATION 36	7	9	8	4	2	2	4		
REG INFLOW 8346	1663	1662	1666	750	228	159	768	770	680
RELEASE 8356	1660	1636	1666	750	228	159	768	770	719
STOR CHANGE -10	3	26							-39
STORAGE 368	371	397	397	397	397	397	397	397	358
ELEV FTMSL 1206.4	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS 25.5	27.0	27.5	27.1	25.2	16.4	10.0	12.5	12.5	12.5
POWER									
AVE POWER MW	93	95	95	88	58	36	44	44	44
PEAK POW MW	115	117	117	117	117	117	78	78	76
ENERGY GWH 353.6	69.1	68.7	70.6	31.8	9.8	6.8	33.0	33.1	30.7
--GAVINS POINT - SIOUX CITY--									
NAT INFLOW 545	135	95	75	38	18	20	45	35	85
DEPLETION 110	33	22	9	5	2	3	11	12	13
REGULATED FLOW AT SIOUX CITY									
KAF 8791	1762	1709	1732	782	243	176	802	793	791
KCFS	28.7	28.7	28.2	26.3	17.5	11.1	13.0	12.9	13.7
--TOTAL--									
NAT INFLOW 6675	1005	975	1120	518	242	276	725	740	1075
DEPLETION -131	152	-144	4	-46	-21	-24	-32	-36	16
CHAN STOR 20	11	30	58	2	-18	-25	-27	-8	-2
EVAPORATION 1307	271	338	291	129	60	69	149		
STORAGE 44428	43258	42360	41510	41163	41105	41136	40914	40890	41156
SYSTEM POWER									
AVE POWER MW	1059	991	717	571	578	512	690	702	709
PEAK POW MW	2053	2039	2021	1990	1988	1990	1966	1986	1999
ENERGY GWH 3964.5	787.6	713.9	533.4	205.6	97.1	98.3	513.4	522.2	493.2
DAILY GWH	25.4	23.8	17.2	13.7	13.9	12.3	16.6	16.8	17.0

INI-SUM 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 29FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

31JUL03		2003						2004	
INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--									
NAT INFLOW 2616	240	312	420	222	104	118	384	378	438
DEPLETION -644	-85	-146	-79	-19	-9	-10	-91	-119	-86
EVAPORATION 228	51	64	56	13	6	7	30		
MOD INFLOW 3032	274	394	443	228	106	121	445	497	524
RELEASE 3048	430	357	258	125	83	111	553	584	546
STOR CHANGE -16	-156	37	185	103	23	10	-108	-87	-22
STORAGE 10950	10794	10831	11016	11119	11142	11152	11044	10957	10934
ELEV FTMSL 2212.3	2211.4	2211.6	2212.7	2213.3	2213.4	2213.5	2212.9	2212.3	2212.2
DISCH KCFS 8.1	7.0	6.0	4.2	4.2	6.0	7.0	9.0	9.5	9.5
POWER									
AVE POWER MW	87	75	52	53	76	88	113	119	119
PEAK POW MW	141	141	142	143	143	143	142	142	142
ENERGY GWH 461.5	65.0	53.9	39.1	19.0	12.7	16.9	84.0	88.4	82.6
--GARRISON--									
NAT INFLOW 3156	576	456	600	240	112	128	300	312	432
DEPLETION 62	136	-33	73	-47	-22	-25	-24	-9	13
CHAN STOR -15	11	10	19		-19	-11	-21	-5	
EVAPORATION 270	61	76	66	16	7	8	35		
REG INFLOW 5857	821	780	737	396	191	245	822	900	965
RELEASE 7557	1291	1012	649	314	201	301	1230	1322	1237
STOR CHANGE -1700	-471	-231	89	82	-11	-56	-408	-422	-271
STORAGE 14857	14386	14155	14244	14326	14315	14259	13851	13429	13157
ELEV FTMSL 1826.1	1824.3	1823.5	1823.8	1824.1	1824.1	1823.9	1822.3	1820.6	1819.5
DISCH KCFS 21.4	21.0	17.0	10.5	10.5	14.5	19.0	20.0	21.5	21.5
POWER									
AVE POWER MW	242	194	121	121	166	217	227	241	239
PEAK POW MW	339	336	337	338	338	338	333	328	325
ENERGY GWH 1037.7	179.8	140.0	90.0	43.7	28.0	41.7	168.9	179.4	166.2
--OAHE--									
NAT INFLOW 450	60	120	78	36	17	19		12	108
DEPLETION 171	87	22	-6	3	1	1	14	19	30
CHAN STOR -1	2	20	32		-20	-23	-5	-7	
EVAPORATION 237	54	67	58	14	6	7	31		
REG INFLOW 7597	1212	1062	707	334	191	289	1180	1308	1315
RELEASE 6979	1574	1277	849	397	161	114	880	931	796
STOR CHANGE 619	-361	-215	-142	-63	30	176	300	377	519
STORAGE 13137	12776	12561	12418	12355	12385	12560	12860	13237	13756
ELEV FTMSL 1586.4	1584.8	1583.9	1583.2	1582.9	1583.1	1583.9	1585.2	1586.8	1589.0
DISCH KCFS 25.4	25.6	21.5	13.8	13.3	11.6	7.2	14.3	15.1	13.8
POWER									
AVE POWER MW	292	244	157	151	131	81	163	174	161
PEAK POW MW	594	589	586	584	585	589	596	605	616
ENERGY GWH 964.6	217.6	175.6	116.5	54.3	22.0	15.6	121.4	129.5	112.0
--BIG BEND--									
EVAPORATION 66	15	19	16	4	2	2	9		
REG INFLOW 6913	1559	1259	833	393	159	112	872	931	796
RELEASE 6913	1559	1259	833	393	159	112	872	931	796
STORAGE 1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL 1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS 23.8	25.4	21.2	13.5	13.2	11.4	7.0	14.2	15.1	13.8
POWER									
AVE POWER MW	120	100	67	67	58	36	71	74	66
PEAK POW MW	515	523	538	538	538	538	538	538	529
ENERGY GWH 406.7	89.1	72.4	50.2	24.0	9.7	6.9	52.9	55.3	46.2
--FORT RANDALL--									
NAT INFLOW 216	48	48	12	6	3	3	12	24	60
DEPLETION 34	15	7	1	1	0	1	3	3	3
EVAPORATION 73	18	23	18	3	1	2	7		
REG INFLOW 7023	1573	1277	826	395	160	113	873	952	853
RELEASE 7333	1560	1490	1460	680	178	113	670	652	529
STOR CHANGE -310	13	-213	-634	-285	-18	0	203	300	324
STORAGE 3434	3447	3234	2600	2315	2297	2297	2500	2800	3124
ELEV FTMSL 1353.8	1354.0	1351.4	1342.6	1337.8	1337.5	1337.5	1341.0	1345.6	1350.0
DISCH KCFS 24.3	25.4	25.0	23.8	22.8	12.8	7.1	10.9	10.6	9.2
POWER									
AVE POWER MW	212	207	187	169	93	52	81	82	74
PEAK POW MW	351	342	306	285	284	283	300	320	338
ENERGY GWH 704.0	157.4	148.8	139.0	61.0	15.7	10.0	60.1	60.7	51.3
--GAVINS POINT--									
NAT INFLOW 918	120	120	144	72	34	38	120	120	150
DEPLETION 28	10	-5	2	5	2	3	10	1	
CHAN STOR 28	-2	1	2	2	19	11	-7	1	3
EVAPORATION 24	5	7	6	1	1	1	3		
REG INFLOW 8226	1663	1609	1599	747	227	159	770	771	682
RELEASE 8236	1660	1583	1599	747	227	159	770	771	721
STOR CHANGE -10	3	26							-39
STORAGE 368	371	397	397	397	397	397	397	397	358
ELEV FTMSL 1206.4	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS 25.5	27.0	26.6	26.0	25.1	16.3	10.0	12.5	12.5	12.5
POWER									
AVE POWER MW	93	92	91	88	58	36	44	45	44
PEAK POW MW	115	117	117	117	117	117	78	78	76
ENERGY GWH 348.8	69.1	66.6	67.8	31.7	9.7	6.8	33.1	33.2	30.8
--GAVINS POINT - SIOUX CITY--									
NAT INFLOW 654	162	114	90	45	21	24	54	42	102
DEPLETION 110	33	22	9	5	2	3	11	12	13
REGULATED FLOW AT SIOUX CITY									
KAF 8780	1789	1675	1680	787	246	180	813	801	810
KCFS	29.1	28.1	27.3	26.4	17.7	11.3	13.2	13.0	14.1
--TOTAL--									
NAT INFLOW 8010	1206	1170	1344	621	290	331	870	888	1290
DEPLETION -239	196	-133		-53	-25	-28	-77	-93	-27
CHAN STOR 13	11	31	54	2	-20	-22	-33	-12	3
EVAPORATION 898	204	255	221	52	24	28	114		
STORAGE 44428	43456	42860	42357	42194	42218	42348	42334	42502	43012
SYSTEM POWER									
AVE POWER MW	1046	913	676	649	582	510	700	734	703
PEAK POW MW	2056	2049	2027	2005	2005	2008	1987	2011	2025
ENERGY GWH 3923.2	778.0	657.2	502.7	233.6	97.8	97.9	520.5	546.3	489.1
DAILY GWH	25.1	21.9	16.2	15.6	14.0	12.2	16.8	17.6	16.9

INI-SUM 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 29FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

	31JUL03	2003							2004	
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--										
NAT INFLOW	1744	160	208	280	148	69	79	256	252	292
DEPLETION	-572	-59	-129	-93	-25	-12	-13	-89	-87	-65
EVAPORATION	413	84	105	92	42	19	22	48		
MOD INFLOW	1903	135	232	281	131	61	70	297	339	357
RELEASE	2855	430	346	244	118	83	111	510	523	489
STOR CHANGE	-952	-296	-114	36	13	-22	-41	-213	-184	-132
STORAGE	10950	10654	10540	10577	10590	10568	10527	10313	10130	9998
ELEV FTMSL	2212.3	2210.5	2209.8	2210.1	2210.1	2210.0	2209.8	2208.5	2207.3	2206.5
DISCH KCFS	8.1	7.0	5.8	4.0	4.0	6.0	7.0	8.3	8.5	8.5
POWER										
AVE POWER MW		87	72	49	49	74	87	102	104	103
PEAK POW MW		140	139	139	139	139	139	137	136	135
ENERGY GWH	425.5	64.9	51.9	36.7	17.8	12.5	16.6	76.0	77.3	72.0
--GARRISON--										
NAT INFLOW	2104	384	304	400	160	75	85	200	208	288
DEPLETION	-124	38	-92	53	-56	-26	-30	-23	4	7
CHAN STOR	-5	11	13	19		-21	-11	-14	-2	0
EVAPORATION	493	102	126	109	49	23	26	56		
REG INFLOW	4586	686	628	501	284	139	189	663	725	770
RELEASE	7396	1291	1012	616	298	167	286	1199	1291	1237
STOR CHANGE	-2810	-606	-384	-114	-14	-27	-96	-536	-567	-467
STORAGE	14857	14251	13868	13753	13740	13713	13616	13080	12514	12047
ELEV FTMSL	1826.1	1823.8	1822.3	1821.9	1821.8	1821.7	1821.4	1819.2	1816.9	1814.9
DISCH KCFS	21.4	21.0	17.0	10.0	10.0	12.0	18.0	19.5	21.0	21.5
POWER										
AVE POWER MW		241	193	114	114	136	202	217	230	232
PEAK POW MW		338	333	332	332	331	330	324	317	311
ENERGY GWH	1000.3	179.5	139.2	84.7	40.9	22.8	38.9	161.6	171.2	161.5
--OAHE--										
NAT INFLOW	300	40	80	52	24	11	13		8	72
DEPLETION	171	87	22	-6	3	1	1	14	19	30
CHAN STOR	-2	2	20	36		-10	-31	-8	-8	-3
EVAPORATION	423	90	109	93	41	19	22	48		
REG INFLOW	7100	1157	980	617	278	147	244	1129	1273	1276
RELEASE	7617	1657	1572	1014	280	181	137	938	926	912
STOR CHANGE	-516	-500	-591	-397	-2	-34	107	191	347	364
STORAGE	13137	12637	12046	11648	11646	11612	11719	11910	12257	12621
ELEV FTMSL	1586.4	1584.2	1581.5	1579.7	1579.7	1579.5	1580.0	1580.9	1582.5	1584.1
DISCH KCFS	25.4	26.9	26.4	16.5	9.4	13.1	8.6	15.3	15.1	15.9
POWER										
AVE POWER MW		307	297	184	104	145	96	170	169	179
PEAK POW MW		591	577	567	567	566	569	574	582	591
ENERGY GWH	1035.8	228.5	213.7	136.6	37.6	24.3	18.4	126.2	125.5	124.9
--BIG BEND--										
EVAPORATION	121	24	31	27	12	6	7	14		
REG INFLOW	7496	1632	1541	987	268	176	131	924	926	912
RELEASE	7496	1632	1541	987	268	176	131	924	926	912
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	23.8	26.5	25.9	16.1	9.0	12.6	8.2	15.0	15.1	15.9
POWER										
AVE POWER MW		125	123	79	46	64	42	75	74	76
PEAK POW MW		515	518	538	538	538	538	538	538	529
ENERGY GWH	439.5	93.3	88.3	58.7	16.4	10.7	8.0	56.1	55.1	53.0
--FORT RANDALL--										
NAT INFLOW	144	32	32	8	4	2	2	8	16	40
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	135	31	39	31	11	5	5	12		
REG INFLOW	7470	1618	1527	964	258	172	127	916	939	949
RELEASE	7780	1605	1590	1581	708	192	127	713	689	575
STOR CHANGE	-310	13	-63	-617	-450	-20	0	203	250	374
STORAGE	3434	3447	3384	2767	2317	2297	2297	2500	2750	3124
ELEV FTMSL	1353.8	1354.0	1353.2	1345.1	1337.9	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	24.3	26.1	26.7	25.7	23.8	13.8	8.0	11.6	11.2	10.0
POWER										
AVE POWER MW		218	222	206	178	101	59	86	86	80
PEAK POW MW		351	348	318	285	284	283	300	317	338
ENERGY GWH	750.5	161.9	159.8	153.1	64.2	16.9	11.3	64.0	63.8	55.5
--GAVINS POINT--										
NAT INFLOW	612	80	80	96	48	22	26	80	80	100
DEPLETION	28	10	-5	2	5	2	3	10	1	
CHAN STOR	26	-3	-1	2	4	18	11	-7	1	2
EVAPORATION	45	9	11	10	5	2	2	5		
REG INFLOW	8346	1663	1662	1666	750	228	159	771	768	677
RELEASE	8356	1660	1636	1666	750	228	159	771	768	716
STOR CHANGE	-10	3	26							-39
STORAGE	368	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.4	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	25.5	27.0	27.5	27.1	25.2	16.4	10.0	12.5	12.5	12.5
POWER										
AVE POWER MW		93	95	95	88	58	36	45	44	44
PEAK POW MW		115	117	117	117	117	117	78	78	76
ENERGY GWH	353.6	69.1	68.7	70.6	31.8	9.8	6.8	33.2	33.0	30.6
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	436	108	76	60	30	14	16	36	28	68
DEPLETION	110	33	22	9	5	2	3	11	12	13
REGULATED FLOW AT SIOUX CITY										
KAF	8682	1735	1690	1717	775	240	172	796	784	771
KCFS		28.2	28.4	27.9	26.0	17.3	10.8	13.0	12.8	13.4
--TOTAL--										
NAT INFLOW	5340	804	780	896	414	193	221	580	592	860
DEPLETION	-353	124	-175	-34	-67	-31	-36	-74	-48	-12
CHAN STOR	18	10	31	57	2	-14	-31	-28	-9	0
EVAPORATION	1629	340	422	362	161	74	85	184		
STORAGE	44428	43043	41917	40824	40372	40268	40237	39883	39729	39829
SYSTEM POWER										
AVE POWER MW		1071	1002	726	580	577	521	695	707	715
PEAK POW MW		2050	2032	2011	1978	1975	1977	1951	1968	1980
ENERGY GWH	4005.4	797.1	721.6	540.4	208.7	97.0	100.1	517.0	526.1	497.4
DAILY GWH		25.7	24.1	17.4	13.9	13.9	12.5	16.7	17.0	17.2

VALUES IN 1000 AF EXCEPT AS INDICATED

	29FEB04	2004											2005			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	9600	319	149	192	797	1604	2491	1219	456	379	531	210	98	112	346	297	400
DEPLETION	358	-17	-8	-10	79	325	501	170	-92	-106	-55	-22	-10	-12	-119	-153	-112
EVAPORATION	309							20	64	81	71	17	8	9	38		
MOD INFLOW	8933	337	157	202	718	1279	1990	1029	484	404	515	215	100	115	427	450	512
RELEASE	4556	179	56	71	238	338	446	461	461	327	265	128	60	127	461	492	444
STOR CHANGE	4378	158	102	131	480	941	1544	568	23	77	249	86	40	-12	-34	-42	68
STORAGE	10934	11093	11194	11325	11805	12746	14290	14858	14880	14957	15206	15293	15333	15320	15286	15245	15312
ELEV FTMSL	2212.2	2213.2	2213.8	2214.5	2217.3	2222.5	2230.6	2233.3	2233.4	2233.8	2235.0	2235.4	2235.6	2235.5	2235.4	2235.2	2235.5
DISCH KCFS	9.5	6.0	4.0	4.0	4.0	5.5	7.5	7.5	7.5	5.5	4.3	4.3	4.3	8.0	7.5	8.0	8.0
POWER																	
AVE POWER MW		75	50	51	51	71	100	102	102	75	59	59	59	110	103	109	109
PEAK POW MW		143	143	144	147	153	206	208	208	209	209	209	209	209	209	209	209
ENERGY GWH	741.5	27.1	8.5	10.9	36.8	53.1	71.9	75.6	75.9	54.0	43.9	21.3	9.9	21.0	76.4	81.4	73.6
--GARRISON--																	
NAT INFLOW	14199	515	240	309	1376	1934	3530	2647	841	574	652	260	121	139	278	348	434
DEPLETION	710	-55	-26	-33	-69	150	830	527	58	-124	-8	-103	-48	-55	-137	-120	-79
CHAN STOR	17	37	21			-16	-21			20	12	0	0	-37	5	-5	
EVAPORATION	334							22	70	88	77	18	9	10	40		
REG INFLOW	17728	786	343	413	1683	2106	3126	2559	1174	957	860	473	221	274	841	955	957
RELEASE	14322	476	208	268	1131	1291	1428	1414	1353	1071	879	425	198	286	1230	1414	1250
STOR CHANGE	3406	310	135	146	552	815	1697	1145	-179	-114	-19	47	22	-12	-389	-459	-292
STORAGE	13157	13468	13602	13748	14300	15115	16813	17958	17779	17665	17646	17693	17715	17704	17315	16856	16563
ELEV FTMSL	1819.5	1820.8	1821.3	1821.9	1824.0	1827.1	1833.1	1837.0	1836.4	1836.0	1836.0	1836.1	1836.2	1836.2	1834.9	1833.3	1832.3
DISCH KCFS	21.5	16.0	15.0	15.0	19.0	21.0	24.0	23.0	22.0	18.0	14.3	14.3	14.3	18.0	20.0	23.0	22.5
POWER																	
AVE POWER MW		179	169	169	216	242	285	282	273	223	177	177	177	223	246	280	272
PEAK POW MW		329	330	332	338	347	365	376	374	373	373	374	374	374	370	365	362
ENERGY GWH	2085.4	64.3	28.3	36.5	155.3	180.2	205.1	209.8	202.8	160.5	131.9	63.8	29.8	42.8	183.2	208.4	182.7
--OAHE--																	
NAT INFLOW	3850	559	261	335	474	347	881	297	123	163	102	109	51	58	22	10	59
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	-3	26	5	0	-18	-9	-13	4	4	17	16	0	0	-16	-9	-13	2
EVAPORATION	318							21	67	84	73	17	8	9	39		
REG INFLOW	17267	1039	463	589	1540	1565	2173	1551	1320	1144	932	516	241	318	1194	1396	1286
RELEASE	12872	287	166	210	694	1145	1307	1576	1662	1437	952	457	212	186	1048	914	619
STOR CHANGE	4395	752	297	379	847	421	866	-25	-342	-293	-20	58	28	132	146	481	667
STORAGE	13756	14508	14805	15184	16031	16451	17317	17292	16950	16658	16638	16696	16724	16856	17002	17483	18150
ELEV FTMSL	1589.0	1592.0	1593.2	1594.7	1597.9	1599.4	1602.4	1602.4	1601.2	1600.1	1600.1	1600.3	1600.4	1600.8	1601.3	1603.0	1605.3
DISCH KCFS	13.8	9.6	11.9	11.8	11.7	18.6	22.0	25.6	27.0	24.2	15.5	15.4	15.3	11.7	17.0	14.9	11.1
POWER																	
AVE POWER MW		114	143	142	142	230	274	322	338	301	193	191	190	146	213	187	142
PEAK POW MW		631	637	644	660	668	684	683	677	671	671	672	673	675	678	687	699
ENERGY GWH	1939.1	41.0	24.0	30.6	102.4	170.8	197.2	239.5	251.5	216.4	143.4	68.9	32.0	28.1	158.6	139.3	95.4
--BIG BEND--																	
EVAPORATION	71							5	15	19	16	4	2	2	9		
REG INFLOW	12801	287	166	210	694	1145	1307	1572	1647	1419	936	453	210	184	1040	914	619
RELEASE	12801	287	166	210	694	1145	1307	1572	1647	1419	936	453	210	184	1040	914	619
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	13.8	9.6	11.9	11.8	11.7	18.6	22.0	25.6	26.8	23.8	15.2	15.2	15.2	11.6	16.9	14.9	11.1
POWER																	
AVE POWER MW		46	56	55	55	87	103	120	125	113	75	77	76	59	84	72	54
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	738.9	16.4	9.4	11.9	39.3	64.9	74.0	89.0	93.3	81.4	55.6	27.6	12.8	11.2	62.2	53.9	36.0
--FORT RANDALL--																	
NAT INFLOW	1501	190	89	114	298	159	224	111	72	92	60	5	2	3	23	10	49
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	82							6	19	24	19	4	2	2	8		
REG INFLOW	14141	475	254	323	988	1295	1519	1659	1685	1480	976	454	211	185	1052	921	665
RELEASE	14141	184	120	323	988	1295	1519	1659	1685	1624	1601	767	358	206	686	664	461
STOR CHANGE	0	291	134			0	0	0	0	-144	-625	-314	-148	-22	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2780	2467	2319	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.3	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	9.2	6.2	8.6	18.1	16.6	21.1	25.5	27.0	27.4	27.3	26.0	25.8	25.8	13.0	11.2	10.8	8.3
POWER																	
AVE POWER MW		52	73	153	141	178	215	227	231	228	209	195	189	95	84	85	67
PEAK POW MW		350	355	355	355	355	355	355	355	349	319	297	285	284	311	328	338
ENERGY GWH	1402.9	18.5	12.3	33.1	101.3	132.4	154.8	168.9	171.5	164.2	155.4	70.3	31.8	18.2	62.2	63.0	45.0
--GAVINS POINT--																	
NAT INFLOW	2252	107	50	64	246	319	281	211	170	135	157	60	28	32	95	106	191
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	0	6	-5	-18	3	-9	-9	-3	-1	0	2	0	0	24	3	1	5
EVAPORATION	26							2	5	7	6	1	1	1	3		
REG INFLOW	16254	298	165	370	1232	1586	1767	1826	1839	1758	1752	821	383	259	771	770	657
RELEASE	16254	298	165	370	1232	1586	1767	1826	1826	1732	1752	821	383	259	771	770	696
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	11.9	20.7	20.7	25.8	29.7	29.7	29.7	29.1	28.5	27.6	27.6	16.3	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	42	71	71	88	100	100	101	101	100	97	97	58	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	678.1	12.6	7.0	15.4	51.4	65.6	72.1	74.5	74.9	72.4	74.2	34.8	16.2	11.1	33.1	33.1	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	3100	195	91	117	1006	553	318	246	184	127	66	26	12	14	30	12	105
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	19107	486	253	483	2218	2105	2055	2036	1976	1837	1809	841	393	269	789	769	788
KCFS		16.3	18.2	27.0	37.3	34.2	34.5	33.1	32.1	30.9	29.4	28.3	28.3	17.0	12.8	12.5	14.2
--TOTAL--																	
NAT INFLOW	34502	1885	879	1131	4197	4916	7725	4731	1846	1470	1568	670	312	357	794	783	1238
DEPLETION	2094	-43	-20	-26	85	601	1520	933	118	-183	-59	-112	-52	-59	-220	-240	-150
CHAN STOR	15	70	21	-18	-15	-33	-42	1	3	37	30	0	0	-29	0	-17	7
EVAPORATION	1138							75	240	302	262	62	29	33	136		
STORAGE	43012	44523	45190	45846	47725	49901	54009	55697	55212	54763	54349	54227	54171	54256	54345	54583	55190
SYSTEM POWER																	
AVE POWER MW		500	532	641	675	896	1077	1152	1169	1040	812	796	789	690	774	778	688
PEAK POW MW		2083	2089	2099	2124	2146	2233	2246	2238	2236	2227	2207	2196	2197	2184	2205	2213
ENERGY GWH	7586.1	180.0	89.4	138.6	486.3	667.0	775.2	857.3	870.0	748.9	604.4	286.7	132.6	132.5	575.8	579.1	462.4
DAILY GWH		12.0	12.8	15.4	16.2	21.5	25.8	27.7	28.1	25.0	19.5	19.1	18.9	16.6	18.6	18.7	16.5

VALUES IN 1000 AF EXCEPT AS INDICATED

	29FEB04	2004												2005			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	8901	296	138	178	739	1487	2309	1130	423	351	492	195	91	104	321	276	371
DEPLETION	310	-17	-8	-10	79	325	501	146	-91	-106	-76	-28	-13	-15	-128	-152	-96
EVAPORATION	327							19	61	78	69	32	15	17	37		
MOD INFLOW	8264	314	146	188	660	1162	1808	965	453	379	499	191	89	102	412	428	467
RELEASE	4718	179	69	89	298	369	476	461	430	298	255	123	58	95	523	523	472
STOR CHANGE	3545	135	77	99	362	793	1332	504	22	81	244	68	32	7	-110	-95	-5
STORAGE	10934	11070	11146	11245	11608	12401	13733	14237	14259	14339	14583	14651	14683	14690	14580	14485	14480
ELEV FTMSL	2212.2	2213.0	2213.5	2214.1	2216.2	2220.6	2227.8	2230.3	2230.4	2230.8	2232.0	2232.4	2232.5	2232.5	2232.0	2231.5	2231.5
DISCH KCFS	9.5	6.0	5.0	5.0	5.0	6.0	8.0	7.5	7.0	5.0	4.1	4.1	4.1	6.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		75	63	63	64	77	106	101	94	68	56	56	56	82	115	115	115
PEAK POW MW		143	143	144	146	151	204	206	206	206	207	207	207	207	207	206	206
ENERGY GWH	760.4	27.1	10.6	13.6	45.7	57.5	76.0	74.9	70.2	48.8	41.8	20.3	9.5	15.6	85.7	85.6	77.3
--GARRISON--																	
NAT INFLOW	12901	482	225	289	1250	1723	3207	2405	764	522	593	236	110	126	260	316	394
DEPLETION	707	-55	-26	-33	-54	162	795	537	56	-124	-7	-97	-45	-52	-143	-124	-83
CHAN STOR	12	37	11			-11	-21	5	5	20	9			-19	-25		0
EVAPORATION	354							21	68	85	74	34	16	18	39		
REG INFLOW	16570	753	330	411	1602	1919	2867	2313	1076	879	790	423	197	236	862	963	949
RELEASE	14118	476	215	277	1101	1261	1369	1383	1353	1071	822	398	186	286	1230	1414	1277
STOR CHANGE	2452	277	115	134	501	659	1499	930	-277	-192	-32	25	12	-49	-368	-452	-328
STORAGE	13157	13434	13549	13684	14185	14843	16342	17272	16994	16803	16770	16795	16807	16758	16390	15938	15610
ELEV FTMSL	1819.5	1820.6	1821.1	1821.6	1823.6	1826.1	1831.5	1834.7	1833.8	1833.1	1833.0	1833.1	1833.1	1833.0	1831.7	1830.1	1828.9
DISCH KCFS	21.5	16.0	15.5	15.5	18.5	20.5	23.0	22.5	22.0	18.0	13.4	13.4	13.4	18.0	20.0	23.0	23.0
POWER																	
AVE POWER MW		178	174	174	210	235	271	272	268	219	163	163	163	218	241	274	272
PEAK POW MW		328	330	331	337	344	360	369	367	365	364	365	365	364	360	356	352
ENERGY GWH	2027.7	64.2	29.2	37.7	150.9	175.1	194.9	202.7	199.7	157.7	121.1	58.6	27.4	41.9	179.5	204.2	182.8
--OAHE--																	
NAT INFLOW	3200	460	214	276	394	285	749	246	103	135	85	91	42	48	18	5	49
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	-5	26	2		-14	-9	-11	2	2	18	20			-20	-9	-13	
EVAPORATION	333							21	64	80	69	31	15	17	37		
REG INFLOW	16394	940	422	539	1435	1473	1984	1468	1301	1121	866	456	213	296	1191	1390	1301
RELEASE	13014	467	78	247	792	1179	1294	1545	1609	1403	908	440	203	199	1056	918	677
STOR CHANGE	3380	473	344	292	643	294	689	-77	-308	-282	-42	16	10	96	135	473	625
STORAGE	13756	14229	14572	14864	15507	15801	16490	16413	16105	15823	15781	15797	15807	15903	16039	16511	17136
ELEV FTMSL	1589.0	1590.9	1592.3	1593.4	1595.9	1597.0	1599.5	1599.3	1598.1	1597.1	1596.9	1597.0	1597.0	1597.4	1597.9	1599.6	1601.8
DISCH KCFS	13.8	15.7	5.6	13.9	13.3	19.2	21.8	25.1	26.2	23.6	14.8	14.8	14.6	12.6	17.2	14.9	12.2
POWER																	
AVE POWER MW		185	67	166	161	233	267	310	322	289	181	181	179	154	211	184	152
PEAK POW MW		625	632	638	650	656	668	667	661	656	655	655	656	657	660	669	680
ENERGY GWH	1929.0	66.4	11.2	35.8	115.8	173.7	192.5	230.9	239.4	207.7	134.5	65.0	30.0	29.6	156.7	137.2	102.4
--BIG BEND--																	
EVAPORATION	78							5	15	19	16	7	3	4	9		
REG INFLOW	12936	467	78	247	792	1179	1294	1540	1594	1384	892	432	199	196	1047	918	677
RELEASE	12936	467	78	247	792	1179	1294	1540	1594	1384	892	432	199	196	1047	918	677
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	13.8	15.7	5.6	13.9	13.3	19.2	21.8	25.0	25.9	23.3	14.5	14.5	14.4	12.3	17.0	14.9	12.2
POWER																	
AVE POWER MW		74	26	65	62	90	102	117	121	110	71	73	72	62	84	73	58
PEAK POW MW		510	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	746.4	26.5	4.4	14.0	44.9	66.8	73.3	87.2	90.3	79.4	53.1	26.3	12.2	12.0	62.6	54.2	39.3
--FORT RANDALL--																	
NAT INFLOW	1200	142	66	85	239	150	195	89	65	64	38	3	1	1	18	5	39
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	88							6	19	24	19	7	3	3	8		
REG INFLOW	13969	607	143	332	1027	1320	1477	1605	1625	1418	911	427	197	193	1055	920	713
RELEASE	13969	199	126	332	1027	1320	1477	1605	1625	1562	1540	736	344	215	689	683	489
STOR CHANGE	0	408	17					0	0	-144	-630	-310	-147	-22	366	237	224
STORAGE	3124	3532	3549	3549	3549	3549	3549	3549	3549	3405	2775	2466	2319	2297	2663	2900	3124
ELEV FTMSL	1350.0	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.2	1340.4	1337.9	1337.5	1343.5	1347.0	1350.0
DISCH KCFS	9.2	6.7	9.1	18.6	17.3	21.5	24.8	26.1	26.4	26.2	25.0	24.7	24.8	13.6	11.2	11.1	8.8
POWER																	
AVE POWER MW		56	78	157	146	181	209	220	222	219	201	188	182	99	84	87	71
PEAK POW MW		354	355	355	355	355	355	355	355	349	318	297	285	284	311	327	338
ENERGY GWH	1386.2	20.1	13.0	33.9	105.3	134.8	150.6	163.5	165.5	158.0	149.5	67.5	30.5	19.0	62.5	64.6	47.7
--GAVINS POINT--																	
NAT INFLOW	1899	93	44	56	207	257	237	178	144	114	132	51	24	27	86	89	161
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	0	5	-5	-18	3	-8	-6	-2	-1	0	2	1	0	21	4	0	4
EVAPORATION	28							2	5	7	6	3	1	1	3		
REG INFLOW	15725	298	166	370	1232	1550	1684	1740	1753	1674	1666	780	364	259	766	771	654
RELEASE	15725	298	166	370	1232	1550	1684	1740	1740	1648	1666	780	364	259	766	771	693
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	11.9	20.7	20.7	25.2	28.3	28.3	28.3	27.7	27.1	26.2	26.2	16.3	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	42	71	71	86	96	96	97	96	95	92	92	58	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	658.6	12.7	7.0	15.4	51.4	64.1	69.3	71.6	72.0	69.2	70.6	33.1	15.4	11.1	32.9	33.1	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	2500	181	85	109	811	406	252	199	148	97	53	21	10	11	24	10	84
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	17978	473	247	475	2023	1922	1906	1903	1854	1723	1710	795	371	267	778	768	764
KCFS		15.9	17.8	26.6	34.0	31.2	32.0	31.0	30.2	29.0	27.8	26.7	26.7	16.8	12.7	12.5	13.8
--TOTAL--																	
NAT INFLOW	30601	1654	772	992	3640	4308	6949	4247	1647	1283	1393	595	278	317	727	701	1098
DEPLETION	2043	-43	-20	-26	100	613	1485	919	117	-183	-79	-112	-52	-60	-235	-243	-138
CHAN STOR	6	69	8	-18	-11	-28	-38	5	7	38	31	1	0	-18	-30	-13	4
EVAPORATION	1208							73	232	292	253	114	53	60	131		
STORAGE	43012	44304	44857	45382	46888	48634	52154	53510	52960	52449	51989	51789	51695	51727	51750	51914	52390
SYSTEM POWER																	
AVE POWER MW		603	449	697	714	903	1051	1117	1125	1001	767	752	744	673	780	778	713
PEAK POW MW		2075	2083	2091	2112	2129	2211	2220	2213	2210	2200	2179	2168	2167	2155	2174	2182
ENERGY GWH	7508.3	217.1	75.5	150.5	513.9	672.1	756.8	830.9	837.1	720.8	570.7	270.8	125.0	129.2	580.0	578.9	478.9
DAILY GWH		14.5	10.8	16.7	17.1	21.7	25.2	26.8	27.0	24.0	18.4	18.1	17.9	16.1	18.7	18.7	17.1

	29FEB04	2004										2005				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7400	264	123	158	628	1210	1851	829	324	319	398	188	88	100	310	261	349
DEPLETION	121	1	1	1	29	259	386	145	-83	-99	-68	-35	-16	-18	-125	-152	-105
EVAPORATION	381							23	72	91	80	36	17	19	42		
MOD INFLOW	6898	263	123	158	599	951	1465	661	335	327	386	186	87	99	393	413	454
RELEASE	5341	179	69	89	357	461	536	553	553	331	257	125	97	127	553	553	500
STOR CHANGE	1557	84	53	68	242	490	929	108	-219	-4	129	61	-11	-28	-160	-140	-46
STORAGE	10398	10482	10535	10604	10846	11336	12265	12373	12154	12150	12279	12340	12329	12301	12141	12001	11955
ELEV FTMSL	2209.0	2209.5	2209.8	2210.2	2211.7	2214.6	2219.9	2220.5	2219.3	2219.2	2220.0	2220.3	2220.2	2220.1	2219.2	2218.4	2218.1
DISCH KCFS	8.5	6.0	5.0	5.0	6.0	7.5	9.0	9.0	9.0	5.6	4.2	4.2	7.0	8.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		74	62	62	75	94	115	117	117	72	54	55	91	104	116	116	116
PEAK POW MW		139	139	139	141	144	196	196	195	195	196	196	196	196	195	194	193
ENERGY GWH	828.3	26.6	10.4	13.4	53.7	70.1	82.9	86.8	86.7	51.9	40.3	19.7	15.3	19.9	86.6	86.3	77.7
--GARRISON--																	
NAT INFLOW	11001	469	219	282	853	1423	2958	2066	581	497	454	192	89	102	253	237	326
DEPLETION	1212	41	19	24	56	213	750	574	66	-111	8	-97	-45	-51	-105	-83	-47
CHAN STOR	-5	27	11		-11	-16	-16			35	14	0	-29	-10	-10		
EVAPORATION	448							27	86	108	94	43	20	23	49		
REG INFLOW	14678	634	280	346	1143	1655	2728	2019	983	867	623	370	183	248	852	873	873
RELEASE	12777	417	194	250	893	1199	1250	1261	1230	888	666	321	236	286	1230	1291	1166
STOR CHANGE	1901	218	86	96	251	456	1478	758	-247	-21	-43	49	-53	-38	-377	-418	-293
STORAGE	12506	12724	12810	12906	13157	13613	15091	15849	15602	15581	15538	15587	15534	15495	15118	14700	14407
ELEV FTMSL	1816.9	1817.8	1818.1	1818.5	1819.5	1821.3	1827.0	1829.8	1828.9	1828.8	1828.6	1828.8	1828.6	1828.5	1827.1	1825.5	1824.4
DISCH KCFS	21.5	14.0	14.0	14.0	15.0	19.5	21.0	20.5	20.0	14.9	10.8	10.8	17.0	18.0	20.0	21.0	21.0
POWER																	
AVE POWER MW		153	154	154	166	217	240	241	237	177	128	128	201	212	234	243	241
PEAK POW MW		320	321	322	325	330	347	355	352	352	352	352	352	351	347	343	339
ENERGY GWH	1785.1	55.2	25.9	33.4	119.7	161.8	172.8	179.3	176.1	127.2	95.6	46.1	33.7	40.7	174.3	181.1	162.2
--OAHE--																	
NAT INFLOW	2300	317	148	190	364	236	689	162	33	118	14	5	2	3	-20		40
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	4	37			-5	-21	-7	2	2	24	19	0	-29	-5	-9	-5	
EVAPORATION	402							24	76	96	84	38	18	20	45		
REG INFLOW	14093	748	332	426	1206	1350	1809	1257	1096	911	623	287	191	262	1145	1271	1181
RELEASE	12144	369	204	260	977	1234	1309	1589	1427	584	900	259	129	146	930	942	886
STOR CHANGE	1950	378	127	167	229	116	500	-332	-331	327	-277	28	62	117	214	329	296
STORAGE	13088	13466	13594	13761	13989	14105	14605	14273	13942	14269	13992	14020	14082	14199	14413	14742	15038
ELEV FTMSL	1586.2	1587.8	1588.3	1589.0	1589.9	1590.4	1592.4	1591.1	1589.7	1591.1	1590.0	1590.1	1590.3	1590.8	1591.7	1593.0	1594.1
DISCH KCFS	15.3	12.4	14.7	14.5	16.4	20.1	22.0	25.8	23.2	9.8	14.6	8.7	9.3	9.2	15.1	15.3	15.9
POWER																	
AVE POWER MW		144	171	170	193	236	260	306	273	116	173	103	109	109	179	183	191
PEAK POW MW		610	613	616	621	623	633	626	620	626	621	621	622	625	629	636	641
ENERGY GWH	1735.1	51.7	28.7	36.7	138.6	175.6	187.3	227.6	203.0	83.5	128.5	36.9	18.4	20.9	133.4	135.8	128.6
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	12040	369	204	260	977	1234	1309	1583	1407	559	878	249	124	141	919	942	886
RELEASE	12040	369	204	260	977	1234	1309	1583	1407	559	878	249	124	141	919	942	886
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.3	12.4	14.7	14.5	16.4	20.1	22.0	25.7	22.9	9.4	14.3	8.4	8.9	8.9	14.9	15.3	15.9
POWER																	
AVE POWER MW		59	69	68	77	94	103	120	108	48	72	42	45	45	75	75	77
PEAK POW MW		517	509	509	509	509	509	509	518	538	538	538	538	538	538	538	529
ENERGY GWH	699.7	21.2	11.6	14.7	55.4	69.9	74.1	89.6	80.5	34.3	53.6	15.3	7.6	8.6	55.8	56.1	51.4
--FORT RANDALL--																	
NAT INFLOW	900	122	57	73	115	140	185	74	57	42	2	2	1	1	10		19
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	104							8	25	26	18	8	4	4	10		
REG INFLOW	12749	490	261	332	1088	1365	1482	1631	1424	560	861	242	120	136	916	939	902
RELEASE	12750	199	127	332	1088	1365	1482	1631	1598	1536	964	242	121	137	713	689	528
STOR CHANGE	-1	291	134					0	-174	-975	-103	0	0	0	203	250	374
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3375	2400	2296	2296	2296	2296	2499	2749	3123
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.1	1339.3	1337.5	1337.5	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	9.6	6.7	9.1	18.6	18.3	22.2	24.9	26.5	26.0	25.8	15.7	8.1	8.7	8.6	11.6	11.2	9.5
POWER																	
AVE POWER MW		56	77	157	155	187	210	223	217	201	115	60	63	63	86	86	76
PEAK POW MW		350	355	355	355	355	355	355	348	291	283	283	283	283	300	317	338
ENERGY GWH	1249.9	20.0	13.0	34.0	111.4	139.4	151.1	166.1	161.5	145.0	85.5	21.4	10.7	12.1	63.9	63.8	51.0
--GAVINS POINT--																	
NAT INFLOW	1450	92	43	55	148	174	166	86	103	77	122	50	23	27	77	79	127
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	6	-5	-18	1	-8	-5	-3	1	0	19	14	-1	0	-6	1	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	14048	298	165	370	1232	1513	1619	1672	1685	1609	1094	298	139	159	770	767	658
RELEASE	14048	298	165	370	1232	1513	1619	1672	1672	1583	1094	298	139	159	770	767	697
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	11.9	20.7	20.7	24.6	27.2	27.2	27.2	26.6	17.8	10.0	10.0	10.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	42	71	71	84	93	93	93	92	63	36	36	36	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	589.0	12.6	7.0	15.4	51.4	62.7	66.8	69.0	69.3	66.6	46.8	12.8	6.0	6.8	33.1	33.0	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1550	169	79	102	199	310	224	129	96	60	42	16	7	9	21	5	82
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	15351	461	241	467	1411	1789	1813	1765	1734	1621	1127	308	144	164	779	759	766
KCFS		15.5	17.4	26.2	23.7	29.1	30.5	28.7	28.2	27.2	18.3	10.4	10.4	10.4	12.7	12.4	13.8
--TOTAL--																	
NAT INFLOW	24601	1435	669	860	2307	3493	6073	3346	1194	1113	1032	452	211	241	651	582	943
DEPLETION	2359	72	33	43	160	598	1325	955	135	-163	-56	-118	-55	-63	-194	-202	-111
CHAN STOR	-10	69	6	-18	-15	-45	-28	-1	3	52	52	14	-59	-15	-25	-4	3
EVAPORATION	1475							90	286	355	307	138	65	74	161		
STORAGE	41156	42127	42528	42860	43581	44642	47550	48084	47126	46478	46184	46322	46320	46371	46250	46271	46562
SYSTEM POWER																	
AVE POWER MW		521	575	683	736	913	1021	1100	1044	706	605	423	545	568	735	747	745
PEAK POW MW		2049	2051	2056	2065	2120	2154	2156	2148	2119	2107	2108	2109	2110	2087	2105	2117
ENERGY GWH	6887.2	187.5	96.6	147.6	530.2	679.4	735.0	818.4	777.1	508.5	450.3	152.3	91.6	109.1	547.1	556.1	500.6
DAILY GWH		12.5	13.8	16.4	17.7	21.9	24.5	26.4	25.1	16.9	14.5	10.2	13.1	13.6	17.6	17.9	17.9
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

29FEB04		2004										2005			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6000	242	113	145	525	925	1454	633	263	252	324	167	78	89	295	212	283
DEPLETION	266	-12	-5	-7	28	165	279	184	-19	-89	-59	-10	-4	-5	-61	-79	-40
EVAPORATION	440							27	84	106	92	42	19	22	48		
MOD INFLOW	5294	254	118	152	497	760	1175	422	198	235	291	135	63	72	308	291	323
RELEASE	5316	149	69	89	494	646	476	492	492	347	245	119	97	127	492	510	472
STOR CHANGE	-22	105	49	63	3	114	699	-70	-294	-111	46	16	-34	-55	-184	-219	-149
STORAGE	9998	10103	10152	10214	10218	10332	11031	10961	10667	10556	10602	10618	10584	10528	10345	10125	9976
ELEV FTMSL	2206.5	2207.1	2207.5	2207.8	2207.9	2208.6	2212.8	2212.4	2210.6	2209.9	2210.2	2210.3	2210.1	2209.8	2208.6	2207.3	2206.4
DISCH KCFS	8.5	5.0	5.0	5.0	8.3	10.5	8.0	8.0	8.0	5.8	4.0	4.0	7.0	8.0	8.0	8.3	8.5
POWER																	
AVE POWER MW		61	61	61	101	125	99	100	100	72	49	50	87	99	98	102	103
PEAK POW MW		136	136	137	137	138	186	186	183	182	183	183	183	182	181	179	178
ENERGY GWH	790.3	22.0	10.3	13.2	73.1	93.3	71.4	74.5	74.1	52.0	36.8	17.8	14.6	19.0	73.3	75.5	69.5
--GARRISON--																	
NAT INFLOW	9400	443	207	266	712	1197	2521	1765	496	417	400	164	76	87	222	165	262
DEPLETION	1263	36	17	21	85	172	625	464	99	-64	69	-76	-35	-41	-57	-37	-15
CHAN STOR	0	38			-36	-24	27			23	20	0	-32	-11		-3	-2
EVAPORATION	516							31	99	124	108	49	23	26	56		
REG INFLOW	12937	594	260	334	1085	1647	2399	1762	790	727	488	309	154	218	715	709	747
RELEASE	12987	446	208	268	1083	1550	1220	1230	1199	872	613	296	236	286	1199	1199	1083
STOR CHANGE	-51	148	51	66	2	97	1179	532	-409	-145	-125	13	-82	-68	-484	-490	-336
STORAGE	12047	12195	12246	12312	12314	12411	13591	14123	13713	13568	13442	13455	13373	13306	12822	12332	11996
ELEV FTMSL	1814.9	1815.6	1815.8	1816.1	1816.1	1816.5	1821.3	1823.3	1821.7	1821.2	1820.7	1820.7	1820.4	1820.1	1818.2	1816.1	1814.7
DISCH KCFS	21.5	15.0	15.0	15.0	18.2	25.2	20.5	20.0	19.5	14.7	10.0	10.0	17.0	18.0	19.5	19.5	19.5
POWER																	
AVE POWER MW		162	162	163	197	271	226	226	221	165	112	112	190	201	216	213	210
PEAK POW MW		313	314	315	315	316	330	336	331	330	328	328	327	327	321	315	311
ENERGY GWH	1731.5	58.3	27.3	35.1	141.9	201.3	162.7	168.0	164.1	118.9	83.5	40.4	31.9	38.5	160.3	158.1	141.1
--OAHE--																	
NAT INFLOW	1449	154	72	92	229	130	577	102	24	65	9				-35	-6	36
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	9	32		0	-16	-35	23	2	2	25	24		-36	-5	-8		
EVAPORATION	452							28	87	109	94	42	20	23	49		
REG INFLOW	13409	610	270	347	1250	1581	1697	1163	1045	830	559	253	180	257	1096	1177	1094
RELEASE	13463	406	257	368	1237	1487	1431	1695	1520	694	1000	266	133	151	1110	981	727
STOR CHANGE	-54	205	13	-21	13	94	266	-532	-475	135	-441	-13	46	106	-14	196	367
STORAGE	12621	12825	12838	12817	12830	12925	13190	12659	12184	12319	11878	11865	11911	12017	12003	12199	12566
ELEV FTMSL	1584.1	1585.0	1585.1	1585.0	1585.1	1585.5	1586.6	1584.3	1582.2	1582.8	1580.8	1580.7	1580.9	1581.4	1581.3	1582.2	1583.9
DISCH KCFS	15.9	13.6	18.5	20.6	20.8	24.2	24.1	27.6	24.7	11.7	16.3	8.9	9.6	9.5	18.1	16.0	13.1
POWER																	
AVE POWER MW		156	211	235	237	276	276	314	279	132	182	100	107	107	202	179	148
PEAK POW MW		595	596	595	595	598	604	591	580	583	573	573	574	576	576	581	589
ENERGY GWH	1845.5	56.0	35.4	50.8	170.7	205.2	198.5	233.9	207.3	94.7	135.7	35.9	18.0	20.5	150.1	133.1	99.5
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13334	406	257	368	1237	1487	1431	1687	1496	664	973	254	128	144	1096	981	727
RELEASE	13334	406	257	368	1237	1487	1431	1687	1496	664	973	254	128	144	1096	981	727
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.9	13.6	18.5	20.6	20.8	24.2	24.1	27.4	24.3	11.2	15.8	8.5	9.2	9.1	17.8	16.0	13.1
POWER																	
AVE POWER MW		65	87	96	97	113	113	128	115	56	80	43	47	46	88	78	63
PEAK POW MW		517	510	509	509	509	509	509	518	538	538	538	538	538	538	538	529
ENERGY GWH	772.9	23.3	14.6	20.8	70.1	84.2	81.1	95.5	85.6	40.6	59.3	15.6	7.8	8.9	65.5	57.8	42.2
--FORT RANDALL--																	
NAT INFLOW	500	68	32	41	64	51	130	26	49	23	1				5	-5	15
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	130							10	31	33	23	10	5	5	13		
REG INFLOW	13617	473	288	408	1297	1529	1549	1685	1499	639	950	243	122	139	1085	973	739
RELEASE	13618	199	153	391	1297	1529	1549	1685	1673	1610	1057	243	123	139	719	701	550
STOR CHANGE	-1	273	135	17	0	0		0	-174	-971	-107	0	0	0	366	272	189
STORAGE	3124	3397	3532	3549	3549	3549	3549	3549	3375	2403	2296	2296	2296	2296	2662	2934	3123
ELEV FTMSL	1350.0	1353.4	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1353.1	1339.4	1337.5	1337.5	1337.5	1337.5	1343.5	1347.4	1350.0
DISCH KCFS	10.0	6.7	11.0	21.9	21.8	24.9	26.0	27.4	27.2	27.1	17.2	8.2	8.8	8.7	11.7	11.4	9.9
POWER																	
AVE POWER MW		56	93	185	184	209	219	231	227	211	126	60	65	64	88	89	80
PEAK POW MW		349	354	355	355	355	355	355	348	291	283	283	283	283	311	329	338
ENERGY GWH	1337.8	20.0	15.6	39.9	132.5	155.9	157.9	171.5	168.9	152.0	93.7	21.5	10.8	12.3	65.2	66.5	53.7
--GAVINS POINT--																	
NAT INFLOW	1251	91	43	55	124	138	143	81	80	58	105	47	22	25	70	68	101
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	6	-8	-21	0	-6	-2	-3	0	0	18	17	-1	0	-5	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	14707	298	187	425	1416	1642	1666	1722	1735	1662	1168	298	139	159	769	769	654
RELEASE	14707	298	187	425	1416	1642	1666	1722	1722	1636	1168	298	139	159	769	769	693
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	13.5	23.8	23.8	26.7	28.0	28.0	28.0	27.5	19.0	10.0	10.0	10.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	47	82	82	91	95	95	96	95	67	36	36	36	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	615.4	12.6	7.9	17.6	58.7	67.8	68.6	70.9	71.3	68.7	49.9	12.8	6.0	6.8	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	900	115	54	69	90	174	125	75	56	35	24	13	6	7	13	-3	48
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	15360	407	238	490	1486	1782	1761	1761	1744	1649	1183	305	142	162	770	753	728
KCFS		13.7	17.2	27.5	25.0	29.0	29.6	28.6	28.4	27.7	19.2	10.2	10.2	10.2	12.5	12.2	13.1
--TOTAL--																	
NAT INFLOW	19500	1114	520	668	1744	2615	4950	2682	968	850	863	390	182	208	570	431	745
DEPLETION	2555	54	25	32	188	463	1093	884	232	-106	14	-73	-34	-39	-82	-83	-14
CHAN STOR	1	77	-8	-21	-52	-64	48	0	3	40	61	17	-70	-16	-13	-3	1
EVAPORATION	1714							107	335	414	355	159	74	85	185		
STORAGE	39829	40560	40808	40933	40951	41257	43401	43331	41992	40925	40297	40313	40243	40226	39911	39670	39702
SYSTEM POWER																	
AVE POWER MW		534	661	822	899	1086	1028	1095	1037	732	617	400	531	552	736	704	648
PEAK POW MW		2025	2025	2025	2025	2030	2099	2092	2077	2042	2022	2022	2022	2024	2005	2020	2021
ENERGY GWH	7093.4	192.2	111.1	177.5	647.0	807.7	740.2	814.4	771.3	527.0	458.9	144.0	89.2	105.9	547.6	524.0	435.5
DAILY GWH		12.8	15.9	19.7	21.6	26.1	24.7	26.3	24.9	17.6	14.8	9.6	12.7	13.2	17.7	16.9	15.6

29FEB04		2004											2005			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5100	234	109	140	515	783	996	439	253	242	320	159	74	85	271	205	275
DEPLETION	401	-12	-5	-7	94	232	344	175	20	-57	-93	-28	-13	-15	-93	-88	-54
EVAPORATION	415							26	80	99	87	39	18	21	45		
MOD INFLOW	4284	246	115	147	421	551	652	238	153	200	326	147	68	78	319	293	329
RELEASE	5335	149	69	89	464	615	506	492	492	351	248	119	97	127	523	523	472
STOR CHANGE	-1052	97	45	58	-43	-64	146	-254	-339	-151	78	28	-29	-49	-204	-230	-143
STORAGE	9998	10095	10140	10198	10155	10091	10238	9984	9645	9494	9573	9600	9572	9523	9319	9089	8946
ELEV FTMSL	2206.5	2207.1	2207.4	2207.7	2207.5	2207.1	2208.0	2206.4	2204.3	2203.3	2203.8	2204.0	2203.8	2203.5	2202.1	2200.6	2199.7
DISCH KCFS	8.5	5.0	5.0	5.0	7.8	10.0	8.5	8.0	8.0	5.9	4.0	4.0	7.0	8.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		61	61	61	95	120	104	98	97	71	48	48	84	96	101	101	100
PEAK POW MW		136	136	137	136	136	180	178	175	174	174	175	174	174	172	170	169
ENERGY GWH	776.6	22.0	10.3	13.2	68.6	89.5	74.7	72.5	71.9	50.9	36.0	17.3	14.1	18.4	75.3	74.8	67.1
--GARRISON--																	
NAT INFLOW	7299	270	126	162	700	903	2020	1277	361	277	390	161	75	86	108	160	223
DEPLETION	1165	36	17	21	85	172	525	379	70	-82	57	-57	-26	-30	-16		14
CHAN STOR	0	38			-31	-24	16	5		23	20	0	-33	-11	-5		0
EVAPORATION	491							30	95	118	103	46	22	25	52		
REG INFLOW	10978	421	179	230	1049	1322	2017	1365	688	614	499	291	145	208	589	683	681
RELEASE	12299	417	180	232	1113	1402	1101	1107	1076	914	618	301	208	270	1138	1168	1055
STOR CHANGE	-1321	5	-2	-2	-64	-80	916	258	-388	-300	-119	-10	-64	-62	-549	-486	-374
STORAGE	12047	12052	12050	12047	11983	11903	12820	13078	12690	12390	12271	12261	12197	12135	11586	11100	10726
ELEV FTMSL	1814.9	1815.0	1814.9	1814.9	1814.7	1814.3	1818.2	1819.2	1817.6	1816.4	1815.9	1815.8	1815.6	1815.3	1813.0	1810.8	1809.1
DISCH KCFS	21.5	14.0	13.0	13.0	18.7	22.8	18.5	18.0	17.5	15.4	10.0	10.1	15.0	17.0	18.5	19.0	19.0
POWER																	
AVE POWER MW		151	140	140	201	243	200	199	193	168	109	110	162	183	197	199	196
PEAK POW MW		312	312	311	311	310	321	324	319	316	314	314	313	313	306	299	294
ENERGY GWH	1600.7	54.3	23.6	30.3	144.4	181.0	144.4	147.7	143.4	120.8	81.4	39.5	27.3	35.2	146.9	148.4	132.0
--OAHE--																	
NAT INFLOW	1049	197	92	118	183	100	215	82	21	64	5	-5	-2	-3	-48	-12	41
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	12	37	5		-28	-20	21	3	3	11	28	0	-26	-11	-8	-3	
EVAPORATION	418							27	81	101	87	39	18	21	45		
REG INFLOW	12356	629	267	337	1221	1418	1214	1021	925	866	572	255	161	235	1025	1138	1071
RELEASE	13714	410	276	378	1262	1510	1446	1713	1537	726	1058	270	136	153	952	966	920
STOR CHANGE	-1358	219	-9	-41	-40	-92	-232	-691	-612	140	-486	15	25	81	73	171	151
STORAGE	12621	12840	12831	12790	12749	12657	12425	11734	11122	11262	10775	10760	10785	10867	10940	11112	11263
ELEV FTMSL	1584.1	1585.1	1585.1	1584.9	1584.7	1584.3	1583.3	1580.1	1577.2	1577.8	1575.4	1575.4	1575.5	1575.9	1576.3	1577.1	1577.8
DISCH KCFS	15.9	13.8	19.9	21.2	21.2	24.6	24.3	27.9	25.0	12.2	17.2	9.1	9.8	9.7	15.5	15.7	16.6
POWER																	
AVE POWER MW		157	227	242	242	279	275	311	274	133	187	98	105	105	168	171	181
PEAK POW MW		596	595	594	594	591	586	569	554	558	545	544	545	547	549	554	558
ENERGY GWH	1842.7	56.6	38.1	52.2	173.9	207.5	197.9	231.1	203.8	96.1	139.0	35.3	17.7	20.1	124.7	127.0	121.6
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13585	410	276	378	1262	1510	1446	1705	1513	695	1031	258	130	147	938	966	920
RELEASE	13585	410	276	378	1262	1510	1446	1705	1513	695	1031	258	130	147	938	966	920
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.9	13.8	19.9	21.2	21.2	24.6	24.3	27.7	24.6	11.7	16.8	8.7	9.3	9.3	15.3	15.7	16.6
POWER																	
AVE POWER MW		65	93	99	99	115	114	130	116	59	84	44	47	47	77	77	80
PEAK POW MW		518	510	509	509	509	509	509	518	538	538	538	538	538	538	538	529
ENERGY GWH	788.7	23.5	15.7	21.4	71.5	85.5	81.9	96.6	86.6	42.5	62.8	15.8	8.0	9.0	56.9	57.5	53.4
--FORT RANDALL--																	
NAT INFLOW	300	55	26	33	43	35	120	13	36	-10	-52	-3	-1	-1		-6	12
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	130							10	31	33	23	10	5	5	12		
REG INFLOW	13669	464	301	411	1301	1536	1554	1690	1503	638	955	245	123	140	922	957	929
RELEASE	13670	202	155	394	1301	1536	1554	1690	1677	1613	1058	246	123	140	719	707	555
STOR CHANGE	-1	262	147	17	0			0	-174	-975	-103	0	0	0	203	250	374
STORAGE	3124	3385	3532	3549	3549	3549	3549	3549	3375	2399	2296	2296	2296	2296	2499	2749	3123
ELEV FTMSL	1350.0	1353.3	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1353.1	1339.3	1337.5	1337.5	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	10.0	6.8	11.1	22.0	21.9	25.0	26.1	27.5	27.3	27.1	17.2	8.3	8.9	8.8	11.7	11.5	10.0
POWER																	
AVE POWER MW		56	94	186	185	210	220	231	228	211	126	60	65	64	87	88	80
PEAK POW MW		349	354	355	355	355	355	355	348	291	283	283	283	283	300	317	338
ENERGY GWH	1339.9	20.3	15.8	40.2	132.9	156.6	158.4	172.0	169.3	152.2	93.7	21.7	10.9	12.4	64.5	65.5	53.6
--GAVINS POINT--																	
NAT INFLOW	1200	87	41	52	120	131	138	76	76	55	104	45	21	24	67	65	98
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	6	-8	-21	0	-6	-2	-3	0	0	18	17	-1	0	-5	0	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	14708	296	187	425	1416	1642	1666	1722	1735	1662	1168	298	139	159	766	771	656
RELEASE	14708	296	187	425	1416	1642	1666	1722	1722	1636	1168	298	139	159	766	771	695
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	13.5	23.8	23.8	26.7	28.0	28.0	28.0	27.5	19.0	10.0	10.0	10.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	47	82	82	91	95	95	96	95	67	36	36	36	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	615.5	12.6	7.9	17.6	58.7	67.8	68.6	70.9	71.3	68.7	49.9	12.8	6.0	6.8	32.9	33.2	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	550	36	17	22	77	144	106	47	22	15	14	10	4	5	10	-5	26
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	15011	326	201	443	1473	1752	1742	1733	1710	1629	1173	302	141	161	764	753	708
KCFS		11.0	14.5	24.8	24.8	28.5	29.3	28.2	27.8	27.4	19.1	10.1	10.1	10.1	12.4	12.3	12.8
--TOTAL--																	
NAT INFLOW	15498	880	411	528	1638	2096	3595	1934	769	643	781	367	171	195	408	407	675
DEPLETION	2592	54	25	32	254	530	1058	790	242	-92	-32	-71	-33	-38	-73	-55	1
CHAN STOR	3	82	-3	-21	-58	-50	36	5	3	27	66	18	-60	-21	-19	-2	3
EVAPORATION	1630							103	320	393	337	151	71	81	174		
STORAGE	39829	40412	40593	40624	40477	40241	41071	40385	38885	37624	36994	36996	36929	36899	36423	36129	36098
SYSTEM POWER																	
AVE POWER MW		526	663	810	903	1059	1008	1063	1003	738	622	396	500	531	674	681	681
PEAK POW MW		2024	2022	2021	2019	2015	2065	2050	2030	1993	1972	1971	1971	1972	1943	1956	1964
ENERGY GWH	6964.0	189.3	111.3	174.9	650.0	787.8	725.9	790.8	746.2	531.3	462.9	142.6	84.0	101.9	501.3	506.4	457.4
DAILY GWH		12.6	15.9	19.4	21.7	25.4	24.2	25.5	24.1	17.7	14.9	9.5	12.0	12.7	16.2	16.3	16.3

29FEB04		2004											2005			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7400	264	123	158	628	1210	1851	829	324	319	398	188	88	100	310	261	349
DEPLETION	121	1	1	1	29	259	386	145	-83	-99	-68	-35	-16	-18	-125	-152	-105
EVAPORATION	383							23	73	92	81	37	17	20	42		
MOD INFLOW	6896	263	123	158	599	951	1465	661	334	326	385	185	87	99	393	413	454
RELEASE	5175	179	69	89	357	461	506	492	461	325	252	122	97	127	553	584	500
STOR CHANGE	1720	84	53	68	242	490	959	169	-127	1	133	63	-11	-28	-161	-171	-46
STORAGE	10398	10482	10535	10604	10846	11336	12295	12464	12337	12338	12471	12535	12524	12496	12335	12164	12118
ELEV FTMSL	2209.0	2209.5	2209.8	2210.2	2211.7	2214.6	2220.0	2221.0	2220.3	2220.3	2221.0	2221.4	2221.3	2221.2	2220.3	2219.3	2219.1
DISCH KCFS	8.5	6.0	5.0	5.0	6.0	7.5	8.5	8.0	7.5	5.5	4.1	4.1	7.0	8.0	9.0	9.5	9.0
POWER																	
AVE POWER MW		74	62	62	75	94	109	104	98	71	53	54	91	104	117	123	116
PEAK POW MW		139	139	139	141	144	196	197	196	196	197	197	197	197	196	195	195
ENERGY GWH	804.6	26.6	10.4	13.4	53.7	70.1	78.3	77.3	72.6	51.2	39.8	19.3	15.3	20.0	87.0	91.4	78.1
--GARRISON--																	
NAT INFLOW	11001	469	219	282	853	1423	2958	2066	581	497	454	192	89	102	253	237	326
DEPLETION	1212	41	19	24	56	213	750	574	66	-111	8	-97	-45	-51	-105	-83	-47
CHAN STOR	-5	27	11		-11	-16	-11	5	5	21	14	0	-30	-10	-10	-5	5
EVAPORATION	449							27	86	108	94	43	20	23	49		
REG INFLOW	14510	634	280	346	1143	1655	2703	1962	895	846	618	367	182	248	852	899	878
RELEASE	12409	417	194	250	893	1076	1190	1199	1168	941	706	342	208	286	1199	1230	1111
STOR CHANGE	2100	218	86	96	251	579	1513	763	-273	-95	-88	25	-26	-38	-347	-331	-233
STORAGE	12506	12724	12810	12906	13157	13736	15249	16012	15739	15644	15556	15581	15555	15517	15170	14839	14606
ELEV FTMSL	1816.9	1817.8	1818.1	1818.5	1819.5	1821.8	1827.6	1830.3	1829.4	1829.0	1828.7	1828.8	1828.7	1828.6	1827.3	1826.1	1825.2
DISCH KCFS	21.5	14.0	14.0	14.0	15.0	17.5	20.0	19.5	19.0	15.8	11.5	11.5	15.0	18.0	19.5	20.0	20.0
POWER																	
AVE POWER MW		153	154	154	166	196	230	230	226	188	136	136	177	212	229	233	231
PEAK POW MW		320	321	322	325	332	349	357	354	353	352	352	352	351	348	344	341
ENERGY GWH	1738.8	55.2	25.9	33.4	119.7	145.6	165.3	171.3	168.0	135.1	101.3	49.1	29.8	40.8	170.2	173.0	155.2
--OAHE--																	
NAT INFLOW	2300	317	148	190	364	236	689	162	33	118	14	5	2	3	-20		40
DEPLETION	585	22	10	13	46	64	123	143	93	23	-8	2	1	1	11	16	25
CHAN STOR	8	37			-5	-12	-12	2	2	15	20	0	-16	-14	-7	-2	
EVAPORATION	408							25	77	98	86	39	18	21	45		
REG INFLOW	13724	748	332	426	1206	1236	1744	1195	1033	954	662	307	175	253	1116	1211	1126
RELEASE	11570	369	204	260	977	1069	988	1498	1430	584	900	259	129	146	930	942	886
STOR CHANGE	2154	378	127	167	229	167	756	-303	-396	370	-238	48	47	107	185	270	240
STORAGE	13088	13466	13594	13761	13989	14156	14913	14610	14214	14583	14345	14393	14440	14547	14732	15002	15242
ELEV FTMSL	1586.2	1587.8	1588.3	1589.0	1589.9	1590.6	1593.6	1592.4	1590.8	1592.3	1591.4	1591.6	1591.8	1592.2	1592.9	1594.0	1594.9
DISCH KCFS	15.3	12.4	14.7	14.5	16.4	17.4	16.6	24.4	23.2	9.8	14.6	8.7	9.3	9.2	15.1	15.3	15.9
POWER																	
AVE POWER MW		144	171	170	193	205	198	291	275	117	174	103	110	110	181	184	192
PEAK POW MW		610	613	616	621	624	639	633	625	632	628	629	630	632	635	641	645
ENERGY GWH	1662.0	51.7	28.7	36.7	138.6	152.3	142.3	216.2	204.8	84.0	129.5	37.2	18.5	21.0	134.4	136.7	129.2
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	11467	369	204	260	977	1069	988	1492	1410	559	878	249	124	141	919	942	886
RELEASE	11467	369	204	260	977	1069	988	1492	1410	559	878	249	124	141	919	942	886
STORAGE	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682	1682
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.3	12.4	14.7	14.5	16.4	17.4	16.6	24.3	22.9	9.4	14.3	8.4	8.9	8.9	14.9	15.3	15.9
POWER																	
AVE POWER MW		59	69	68	77	81	78	114	108	48	72	42	45	45	75	75	77
PEAK POW MW		517	509	509	509	509	509	509	518	538	538	538	538	538	538	538	529
ENERGY GWH	667.2	21.2	11.6	14.7	55.4	60.6	56.0	84.5	80.7	34.3	53.6	15.3	7.6	8.6	55.8	56.1	51.4
--FORT RANDALL--																	
NAT INFLOW	900	122	57	73	115	140	185	74	57	42	2	2	1	1	10		19
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	104							8	25	26	18	8	4	4	10		
REG INFLOW	12176	490	261	332	1088	1200	1161	1540	1427	560	861	242	120	137	916	939	902
RELEASE	12177	199	127	332	1088	1200	1161	1540	1601	1535	964	242	121	137	713	689	528
STOR CHANGE	-1	291	134					0	-174	-975	-103	0	0	0	203	250	374
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3375	2400	2296	2296	2296	2296	2499	2749	3123
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.1	1339.3	1337.5	1337.5	1337.5	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	9.6	6.7	9.1	18.6	18.3	19.5	19.5	25.0	26.0	25.8	15.7	8.1	8.7	8.6	11.6	11.2	9.5
POWER																	
AVE POWER MW		56	77	157	155	165	165	211	217	201	115	60	63	63	86	86	76
PEAK POW MW		350	355	355	355	355	355	355	348	291	283	283	283	283	300	317	338
ENERGY GWH	1192.2	20.0	13.0	34.0	111.4	122.8	118.8	157.0	161.8	145.0	85.5	21.4	10.7	12.1	63.9	63.8	51.0
--GAVINS POINT--																	
NAT INFLOW	1450	92	43	55	148	174	166	86	103	77	122	50	23	27	77	79	127
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	6	-5	-18	1	-2	0	-11	-2	0	19	14	-1	0	-6	1	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	13474	298	165	370	1232	1353	1303	1574	1685	1609	1094	298	139	159	770	767	658
RELEASE	13474	298	165	370	1232	1353	1303	1574	1672	1583	1094	298	139	159	770	767	697
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.5	10.0	11.9	20.7	20.7	22.0	21.9	25.6	27.2	26.6	17.8	10.0	10.0	10.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		35	42	71	71	76	75	88	93	92	63	36	36	36	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	566.2	12.6	7.0	15.4	51.4	56.3	54.2	65.1	69.3	66.6	46.8	12.8	6.0	6.8	33.1	33.0	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1550	169	79	102	199	310	224	129	96	60	42	16	7	9	21	5	82
DEPLETION	247	6	3	4	20	34	30	36	34	22	9	6	3	3	12	13	13
REGULATED FLOW AT SIOUX CITY																	
KAF	14777	461	241	467	1411	1629	1497	1667	1734	1621	1127	308	144	164	779	759	766
KCFS		15.5	17.4	26.2	23.7	26.5	25.2	27.1	28.2	27.2	18.3	10.4	10.4	10.4	12.7	12.4	13.8
--TOTAL--																	
NAT INFLOW	24601	1435	669	860	2307	3493	6073	3346	1194	1113	1032	452	211	241	651	582	943
DEPLETION	2359	72	33	43	160	598	1325	955	135	-163	-56	-118	-55	-63	-194	-202	-111
CHAN STOR	-5	69	6	-18	-15	-30	-22	-3	6	28	53	14	-47	-24	-23	-7	8
EVAPORATION	1486							91	288	358	309	139	65	74	162		
STORAGE	41156	42127	42528	42860	43581	44817	48045	48675	47717	47043	46748	46884	46894	46935	46816	46834	47130
SYSTEM POWER																	
AVE POWER MW		521	575	683	736	817	854	1037	1018	717	614	431	523	570	732	745	736
PEAK POW MW		2049	2051	2056	2065	2078	2162	2165	2157	2127	2115	2117	2117	2119	2095	2113	2124
ENERGY GWH	6631.1	187.5	96.6	147.6	530.2	607.7	614.9	771.4	757.1	516.1	456.5	155.2	87.9	109.3	544.4	554.0	494.6
DAILY GWH		12.5	13.8	16.4	17.7	19.6	20.5	24.9	24.4	17.2	14.7	10.3	12.6	13.7	17.6	17.9	17.7